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ORIGINAL LECTURES.

CLINICAL LECTURE

ON SCIATICA: WITH REMARKS UPON ITS ETIOLOGY AND TREATMENT.

*Delivered at the Hospital of the University of Pennsylvania,
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Reported by WILLIAM H. MORRISON, M.D.

GENTLEMEN,—Our first patient is suffering from the painful affection sciatica. He is a big, burly fellow, a car-driver by occupation. He has always enjoyed good health, but has been a good deal exposed to the weather, working from 4.30 A.M. until 11 P.M. and getting only about four hours' sleep. This he has kept up for thirteen years. His occupation requires him to go along the river front; but he has never suffered from malarial trouble.

Last Tuesday, four days ago, after no unusual exposure, he began to have pains in the groin, extending towards the knee, and pains down the back of the thigh. The pains were, therefore, along the lines of the anterior crural nerve in front and the sciatic nerve behind. The suffering is most marked at nights, beginning about 8 P.M. and subsiding at 6 A.M. He has noticed this every night. Making any movement that disturbs the hip-joint causes severe pain.

The symptoms of sciatica in its acute form are so characteristic that there is no danger of its being overlooked. In chronic sciatica, however, we have to consider carefully whether we have to deal with pure sciatica, or whether we have pain in the course of the sciatic nerve as one of the symptoms of some deep-seated trouble. In the first place, it is important to distinguish between those attacks which are palpably acute and those which are more or less chronic and in which the symptom of sciatica may be only one of several morbid conditions present. In aneurism of the aorta low down the tumor may press upon the nerves of one side, causing pain in the course of the circumflex, the genito-crural, the ilio-inguinal, or

the sciatic nerve. Under such circumstances there may be sciatica as one of the symptoms of a deep-seated abdominal disorder. The same thing is true in some cases of leucæmia where the abdominal glands are first involved. I have seen on several occasions the first symptoms in lymphatic leucæmia resemble those of lumbago or sciatica, and the real condition has not been recognized until the progressive failure of health and strength, the increasing anæmia, the continuous enlargement of the lymphatic glands, or the examination of the blood, has revealed the nature of the disease. In any case of chronic sciatica it is necessary to consider all sources of pressure on the nerve, and until this has been done it is not safe to say that the neuralgia is due simply to an affection of the sciatic nerve. In an acute attack like the one which this man has, we are spared all anxiety as regards this point. We at once recognize that it is a case of simple sciatica, involving the nerve-trunk; but this knowledge is not sufficient to enable us to treat the case intelligently.

The causes of sciatica are numerous. Let me mention a few of them. Malaria not rarely reveals itself by some local neuralgia. The most common form is perhaps ordinary trifacial neuralgia, but there may be from this cause neuralgia of the brachial plexus, and frequently one of the sciatic nerves is involved. I have seen cases in which there was no chill, scarcely any fever, but severe periodic sciatica, which rapidly yielded to quinia. You are not to suppose, however, that because a neuralgia exhibits a marked periodicity it is malarial in its origin, for frequently neuralgic conditions resulting from the most diverse causes exhibit a marked periodicity,—i.e., tending to recur at the same hour on succeeding days. Although this man has been exposed to the malarial poison along the river edge in the early mornings and evenings, and although his neuralgia exhibits periodical exacerbations, we are not to assume at once that it is of malarial origin.

In this connection I shall call attention to the presence or absence of pain over the point of emergence of the nerve as a means of some value in the differential diagnosis. In all neuralgias painful spots are found over the points of exit of the nerve affected. In sciatica it is where the nerve passes through the sacro-sciatic foramen.

In the purely malarial affection it has seemed to me that the local tenderness is less marked than it is when the neuralgia is dependent upon a definite lesion of the nerve-sheath and trunk, so that excessive tenderness over the point of emergence and excessive pain on motion constitute to my mind evidence against the purely malarial origin of a periodic neuralgia. In neuralgia due to malaria the local tenderness in the interval is slight, but during the paroxysm there is undoubtedly a congestion of the nerve-sheath causing local pain and tenderness; but with the disappearance of the congestion these subside, while if the neuralgia is due to some local lesion of the nerve the tenderness is extreme and more or less persistent. In cases where there is doubt as to the cause of the trouble, the use of quinia in full doses is a therapeutic test that should never be neglected.

Again, I have seen several cases of sudden, severe sciatica in workers in lead. We more commonly see abdominal neuralgias from this cause; but lead-poisoning may also cause a neuralgia of peripheral nerve-trunks.

Far more frequently the neuralgia results from some congestion of the nerve-sheath, often associated with a gouty or rheumatic diathesis; and, even though there is no gouty or rheumatic tendency, exposure to damp and cold may cause a sudden congestion of the nerve-sheath, with such pressure upon the nerve-trunk as to give rise to the most intense pain. This condition may affect any peripheral nerve, as the cranial nerves, the branches of the brachial plexus, very frequently the intercostal nerves, and the sciatic nerves. This is the most common cause of acute sciatica. We are to distinguish between rheumatic neuralgia and that due to simple congestion by the history of the case, by the presence or absence of the rheumatic or gouty diathesis in well-marked form, and by the existence or non-existence of symptoms of rheumatism or gout in other parts of the body.

Neuralgia from any of these causes may pass into the chronic form, and thus the most usual causes of chronic neuralgia are malaria, some toxic influence, or a subacute inflammation beginning as an acute attack and running into a subacute or chronic form, with persistent thickening of the nerve-sheath and constant pressure upon the nerve-trunk.

In addition, sciatica may be an expression of the neuralgic constitution. This is associated with a special condition of system, and is found in anæmic individuals of morbidly sensitive natures. It is in such cases that we see neuralgia in its most protean form. These cases are usually recognized with ease.

In the present case the diagnosis is between malarial neuralgia and simple perineuritis of the sciatic nerve. The fact that this man has never had malaria, the fact that there is intense tenderness over the point of emergence of the nerve, and the fact that this persists during the intervals between the spells of pain, render it probable that this sciatica is due to simple congestion.

Sciatica gives rise to very severe pain whenever such motions are made as disturb the relation of the sciatic nerve to the opening through which it passes. The patient may walk pretty well as long as he keeps the leg stiff, but the moment he makes the slightest motion which disturbs the relation of the nerve at its point of exit he is seized with a violent paroxysm of pain. The pain is usually referred to a point between the trochanter and the tuber ischii, thence it extends along the course of the nerve. If the lesser sciatic is alone involved, the pain does not go below the knee, but when the main sciatic nerve is affected, the pain may extend into the calf of the leg and into the foot and radiate through the various branches of the nerve. The pain is often associated with a feeling of fulness, weight, and tingling. There may be at the same time a painful condition of other nerves. In this man there seems to be involvement of the anterior crural nerve.

In all cases of neuralgia there is this tendency to periodicity, the pain being more severe at one period than at others, and sometimes entirely disappearing. The spells of pain more frequently occur during the night, but they may occur during the day. If this neuralgia were purely malarial, it is probable that the paroxysm of pain would come on at the time that a chill usually appears,—that is, in the early part of the day.

The treatment is based upon a careful study of the causal condition. I shall treat this man in the following manner. The pain is so severe that I shall have injected, morning and evening, into the deep tissues

of the thigh a solution of morphia and atropia :

Morphiæ sulph., gr. $\frac{1}{8}$;
Atropiæ sulph., gr. $\frac{1}{80}$.

When thrown deeply into the tissues the injection does much more good than when simply placed beneath the skin. The puncture itself is useful. The mere penetration of the tissues with a needle unquestionably does good ; still more benefit is obtained when the puncture is followed by an injection of simple water ; but of course the best result is derived from the injection of a solution containing a suitable anodyne.

It is an old observation that puncturing the tissues over a painful nerve would relieve the pain. The practice of acupuncture, by plunging solid needles into the tissues, for the relief of neuralgia, dates back thousands of years in the Chinese practice of medicine. In China there is a caste or class of people whose business it is to practise acupuncture. The needles which they use for the treatment of sciatica are very long, made of fine gold, brought to an exquisite point, sometimes worked with a fine spiral and sometimes perfectly smooth. These are rapidly rotated between the thumb and index-finger and inserted to a great depth. It has been supposed that the relief afforded is due to puncture of the nerve-sheath, allowing the escape of some exudation which causes pressure upon the nerve. I do not think, however, that this is at all probable, for the anatomical knowledge of those who practise this treatment is very slight, and even if they succeeded in reaching the nerve-sheath the needle would probably be introduced too far and injure the nerve itself ; and, again, the opening would be so small and the tissues are so elastic that very little fluid could escape.

Some attribute the good effects of puncture to the influence of the mind over the body, while others think it due to reflex action on the vaso-motor nerves. I do not care to spend time to-day in considering the correctness of these explanations ; but the fact that mere puncture does good in neuralgia is undoubted.

Let me here say that, while I confidently recommend hypodermic injections of morphia, I earnestly protest against their use in chronic neuralgia. In no other disease will you find the opium habit more readily contracted than in chronic neuralgia. The

attacks come on so frequently and so violently that the patient soon becomes the victim of this most troublesome habit. In such cases I should far rather resort to some other means of relieving the pain than injections of morphia. In this instance I have no hesitation in employing morphia, for the necessity for its use will pass away in a few days.

We should by all means use some form of counter-irritation over the affected nerve. I shall first use a blister ; but if the case proves obstinate the actual cautery should be resorted to. I shall apply a blister three inches by four inches.

Internally I shall, for two or three days, give him thirty grains of quinia a day. I do not give it with the idea that it is going to cure the neuralgia, but because his history justifies a suspicion of malarial poisoning, and, even if there is no malarial element, the effect of the quinia upon the vessels of the affected part and its influence upon the general nervous system cannot fail to be of benefit. After a few days the dose of quinia will be diminished and arsenious acid be associated with it. When the injections are stopped I shall also give him belladonna and iron. I shall immediately put him on iodide of potassium, five grains four times a day.

This will constitute the treatment, and by the middle of next week the man will probably be able to return to his work.

ORIGINAL COMMUNICATIONS.

IS CRANIOTOMY JUSTIFIABLE ?

*Read before the Philadelphia County Medical Society,
February 14, 1883,*

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AS we survey the history of obstetrics, we are impressed with the fact that in the earlier days of the art some sage enunciated and impressed upon his followers the formula, "Meddlesome midwifery is bad." This axiom, like "the little leaven that leaveneth the whole lump," has been the pervading principle from that day to this.

It has been the spectre that has constantly stood in the way of progress, and, like Banquo's ghost, would not down:

Every step towards obtaining greater

safety for both mother and child has been in direct violation of this principle, and we do not hesitate to declare that to its influence upon the teaching of the present century is due the existence of the practice of craniotomy upon the living foetus as an elective operation.

Craniotomy can, before all other obstetric operations, plead antiquity in justification of its practice. It was evidently known at the time of Hippocrates, as he mentions a method of delivery of the head by hooks. A similar method is described by Celsus.

The Arabian physicians not only employed perforators upon the head, but were familiar with the use of instruments for compressing and extracting it. Indeed, before the introduction of forceps, where turning was impracticable or had failed, this was the only method of delivery. The hook and perforator were probably the first obstetrical instruments devised.

The value of the operation is variously estimated in different countries and by different obstetricians.

According to Churchill, it was performed by the British in the proportion one in two hundred and one and three-fourths cases of labor; by the French, one in twelve hundred and five and two-thirds; and by the Germans, one in nineteen hundred and forty-four and one-third; Dr. Collins, one in one hundred and forty-one; Baude-locque, one in two thousand eight hundred and ninety-eight; and Siebold, of Berlin, one in two thousand and ninety-three. In the absence of any statistics, it is impossible to estimate the frequency of its performance in this country, though we do not perform it with anything like the frequency of the British. In consideration of the certain mortality to children and frequently fatal results in mothers, it is a subject worthy of the highest and most serious consideration.

Barnes gives the following indications for its performance:

1st. Such contraction of pelvis, or soft parts, as will not give passage to a live child, and where forceps and turning are of no avail. These may be due to distortion of the pelvis, which is most frequent at the brim; to tumors—bony, malignant, or ovarian—encroaching upon the pelvic cavity; to growths, fibroid or malignant, in the walls of the uterus; to cicatricial atresia of the vagina or cervix; to extreme spas-

tic contraction of the uterus upon the child, forbidding forceps or turning; where obstruction in pelvic contraction ranges from 3.25" max. to 1.50" min.

2d. Cases where obstruction is due to the child, as face-presentations, locked twins, hydrocephalic head.

3d. Conditions of danger to the woman, rendering it expedient to deliver as speedily as possible. Some cases of rupture, convulsions, hemorrhage, or great exhaustion, where delivery is urgent and cervix undilated.

Of 1000 cases of craniotomy collated by Tyler Smith, 448 were occasioned by contraction of the pelvis. The greater number of British authorities say that Cæsarean section need not be resorted to when the smallest diameter exceeds 1½". On the continent, however, Cæsarean section is practised from choice if the smallest diameter is from 2" to 2½" when the child is alive. Pajot, of Paris, contended for the cephalotribe in a conjugate diameter of 1¾". Osborne delivered a foetus successfully through a pelvis which he believed to have measured only ¾"; but we all know how easy it is to make a mistake of ¾" to 1" in such approximate estimates, and how difficult it must be even to reach the head through such a pelvis with the finger, let alone the accurate use of instruments.

Greenhalgh says, "Nothing could induce me again, even under the most favorable circumstances, to attempt delivery by the crotchet when the conjugate diameter of the brim does not fully measure 2", exclusive of the soft parts." Burns appropriately says, "It is one thing to extract, and another to extract safely, in extreme deformity."

It is difficult to arrive at an accurate estimate of the mortality in craniotomy, but according to Churchill and Tyler Smith it is in the proportion of one in five. It is evident, however, that the greater the contraction the more difficult the operation and the more likely to be attended with fatal consequences to the mother. Of seventy cases collected by Parry, in which the conjugate was 2½" or less, forty-three, or 61.43 per cent., recovered, and twenty-seven, or 38.57 per cent., died.

Hemming has shown that of two hundred upon whom cephalotripsy was performed thirty-nine died, a mortality of 19½ per cent. Jones says that during three years, 1857-59, in the Hôpital Clinique,

of twenty-four women operated upon seven died, or over 25 per cent. In eight of these the conjugate was less than $2\frac{1}{2}$ " , five of whom proved fatal. Baudelocque, in 1829, claimed that more than half the women delivered by craniotomy in the previous sixteen and a half years died, and suggested a new cephalotribe.

In one hundred and three craniotomies collected by Rokitsansky, forty-one, or about 41 per cent., proved fatal. He says, "In Prof. Braun's clinic a much greater number of unfavorable cases had been treated by the cranioclast than by the cephalotribe, and yet the results of the former instrument were in every respect superior." Hodge says, "If the conjugate be 2" or under, Cæsarean section should be performed, as affording better prospect for the mother." Cazeaux says, "We should prefer Cæsarean section to craniotomy when the conjugate is $2\frac{3}{8}$ " and the child alive." Hicks and Phillips claim that the mortality of one in five is too large, as deaths are attributed to craniotomy which are due to the condition rendering it necessary, as rupture of the uterus, etc. Harris, on the other hand, objects to cases in which laparotomy is performed for rupture being included in the statistics of Cæsarean section, from the fact that, the operation being done early, they are more favorable.

The dangers of craniotomy, according to Barnes, are,—

1. The perforator has been known to strike the promontory of the sacrum or to lacerate the cervix uteri.

2. Spicula of cranial bones resulting from perforation may scratch or tear the soft parts.

3. The crotchet may slip and lacerate the soft parts.

4. The operation may be deferred too long.

5. Long-continued pressure may cause mortification and sloughing of the mother's soft parts. Of these the first, third, and fourth may be eliminated. No capable operator would thrust the perforator into the sacrum for the child's head; he would also carefully guard the crotchet so that his hand should be wounded rather than the tissues of the woman, and, when satisfied she could not be delivered otherwise, would operate at once. The cause of greatest danger is undoubtedly that of pressure, and this is an important one in small pelves. Upon a careful survey of

the subject, we find all authorities agreeing that where the conjugate is less than $1\frac{1}{2}$ " , Cæsarean section is unavoidable. Parry, in an able paper,* has shown that where the conjugate is less than $2\frac{1}{2}$ " , Cæsarean section affords better results for the mother. With this the views of Hodge and Cazeaux nearly coincide. As we have, then, but $\frac{3}{4}$ " between 3.25", the maximum diameter at which craniotomy is supposed to be necessary, and $2\frac{1}{2}$ " , the minimum diameter, in which it is safer for the mother than Cæsarean section, we have certainly reached a period when we are justified in abolishing the murderous operation of craniotomy from the list of elective operations when the fœtus is still alive.

In the early period of obstetrics, when the woman was unable to deliver herself, the only alternative was between Cæsarean section and craniotomy. As these involved the death of either the mother or the child, the latter alternative was always, when practicable, chosen. From this practice was formulated the principle that the life of the mother should always have the precedence: hence it became the rule to sacrifice the child rather than subject the mother to any risk. This was very evidently the practice of the British physicians, where we find craniotomy in the proportion of one in two hundred and one and three-quarters, and the forceps used once in three hundred and sixty-two and three-quarters.

Examining further, we find that those who use the forceps most frequently are those who, as a rule, least often perform craniotomy. Thus, Clark employed forceps in one in seven hundred and twenty-eight; craniotomy in one in two hundred and forty-eight. Collins, forceps in one in six hundred and seventeen; craniotomy in one in one hundred and forty-one. Siebold, of Berlin, forceps in one in seven; craniotomy in one in two thousand and ninety-three.

But is this principle a correct one? Should the mother always be considered first? It has been claimed in favor of this that the mother has her relations in life fixed; she is already endeared to her husband and family, and has a large circle of influence, possibly other children dependent upon her; while, upon the other hand, the embryo is, as Barnes says, a mere

* American Obstetrical Journal for 1875.

vegetative existence, drawing its life-nourishment from the mother, and with no certainty that it would live a day when this union is severed. Taking this view, it is not surprising that the life of the mother should be considered relatively more valuable. But in deciding this question we should lay aside all feeling and be governed by conscience and reason. We have to do with two human lives, not one, and every principle of law and morals demands of us that we should institute such measures as are most likely to save both.

The physician may be called upon to perform craniotomy a number of times upon the same woman. It has been thus performed as often as a dozen times. Can such a practice be justified? Is it surprising that the renowned Dr. Meigs should have refused to perform craniotomy a third time for Mrs. Reybold? As the result of such refusal, she is to-day, Harris informs us, the possessor of two children and six grandchildren.

Radford says, "The woman is *ipso facto* one party, and, indeed, the chief party, who has brought into existence the innocent being whose life the practitioner is employed to take away. It may be argued, as a plea for her justification, that the wife is subject to her husband; and there can be no doubt that she has engaged to be so in the matrimonial contract, which was mutual. But if it be considered right (which in such a case as this could only be conditionally) strictly to observe this promise, it must be equally imperative upon both parties to obey the law of nature, and fulfil their mutual pledge to procreate (and, without doubt, preserve) the species, both of which vows are broken by the employment of the crotchet." It may be argued that, as she was ignorant of her condition in the first pregnancy, she is entitled to craniotomy, if such give her greater security. But certainly she could not urge this plea in a second pregnancy; she is now acquainted with the fact that an un mutilated infant cannot be born *per vias naturales*, and should afford the fœtus a chance for its life.

The life of the mother is not always of the same value. She may be the victim of some incurable disease, as cancer of the uterus, phthisis, or heart-disease. It certainly should not be considered justifiable to sacrifice the child for the purpose of prolonging the miserable existence of the

mother. Of course we do not desire to be understood that the life of the woman should ever be sacrificed for the child; but the attempt should be made to save the lives of both.

Prof. Simpson, of Edinburgh, says, "Formerly medical practitioners seem to have thought little, and medical writers said little, regarding the very repulsive character of the operation of craniotomy when performed, as it frequently was, when the child was still living. Apparently, some obstetric practitioners and writers of the present day continue to look upon the practice of craniotomy as one that should not unfrequently be adopted, and one which it is quite justifiable to adopt. Obstetric reports and collections of cases have been published within the last few years describing craniotomy as performed forty or fifty times, or oftener, by the hand of the same practitioner. But perhaps ere long it will become a question in professional ethics whether a professional man is, under the name of a so-called operation, justified in deliberately destroying the life of a living human being."

The physician should make it a rule to examine, during the last month of pregnancy, every woman who applies to him for attendance in confinement, and thus determine the presentation of the fœtus and the presence of organic impediments to the passage of a mature and full-grown infant, when such exist. At the proper time the woman should be informed of the alternative operations which are suitable to meet the exigencies of her case. If the obstruction is moderate in degree, the forceps, turning, or the induction of premature labor, with or without symphyseotomy, will be proper; but if the distortion is great in degree, then Cæsarean section, laparo-elytrotomy, or hysterecto-ectomy may be required.

When we consider the divine possibilities of the fœtus whose life we are called upon to sacrifice, no physician can plunge the perforator into the head, or crush it with the cephalotribe, without earnestly yearning for some more excellent way. Is he who speaks of the unborn child as a mere vegetative existence, unworthy of consideration when its mother's life is in peril, ready to proclaim that the world would have been no poorer had Shakspeare or Milton been the victim of the perforator? And yet the promise and possi-

bilities of any unborn foetus are as great as were theirs at the same period of existence.

FORCEPS.

Of the various alternatives for avoiding craniotomy, the first that deserves our attention is the employment of the forceps. They have been called the child's instrument, but may be equally effective for the mother. The past history of the employment of the forceps illustrates well what we have already said of the baneful influence of the axiom "Meddlesome midwifery is bad;" and in no country is this more true than in England, the birthplace of the forceps.

We have already seen that the English apply them in the proportion of one in three hundred and sixty-two. The frequency of craniotomy is in inverse ratio to the frequent use of the forceps. The maternal mortality resulting from their employment is said by Churchill to be in the proportion of one in twenty. This, to us, excessive mortality is explained by the delay in the use of the instruments.

The following state, according to Harper, was formerly described as indicating the necessity for the use of the forceps. The pains must have nearly ceased; vomiting and severe shivering; dry tongue; sordes on the teeth; pulse above 120, weak, and perhaps intermitting; fetid discharge from the vagina; restlessness, and even slight delirium; listlessness and supineness, with a certain amount of careless indifference to anything which may be suggested; and, to complete the picture, some tenderness of the abdomen. Denman recommended that the head of the child shall have rested upon the perineum six hours before the forceps are applied, though the pains should have entirely ceased during that time. Lee, Hunter, and Collins held similar views. Meigs says, "The forceps cannot be applied unless the parts are favorably disposed. For instance, the os uteri must be dilated and gone up over the head." No such delay as this is desirable or consonant with the safety of mother or child. The longer the head remains impacted in the pelvis, the more it becomes swollen, and, by interfering with the circulation in the pelvic tissues, produces turgescence and œdema, increasing the difficulty in delivery. Many of the lesions—as lacerations of cervix, vagina, and perineum, fistulæ, sloughing of vaginal walls, etc.—

formerly attributed to the use of the forceps were really the result of long-continued pressure.

The employment of the forceps is without doubt indicated if the ordinary forces are insufficient to overcome the obstacles to delivery, where the conjugate is not less than 3.25". As soon as it becomes evident that the mother's forces are insufficient, it is useless to continue the suffering. The early application of the forceps prevents exhaustion and promotes the subsequent recovery.

When applied at the superior strait, it should be done early, while the head is in a favorable position, before the swelling of the soft parts, and to relieve the latter from the effects of continued pressure. Second, because the child is more likely to be alive and live after birth than if subjected a long time to the pressure of the uterine contractions. In this position the forceps are necessarily applied in the occipito-frontal position, instead of upon the sides; consequently they should be used as tractors, with but little compression. The contraction being in the conjugate, any compression would increase the diameter to be presented to it.

Harper applied the forceps two hundred and thirty-two times in private practice, in ninety-nine of which he used the long forceps, without a single maternal death. Radford never had a death after the long forceps. The danger arises not from the application of the instruments, but from the delay in their use.

TURNING.

Where the conjugate is less than 3.25", or the disproportion between the head and the pelvis is marked, version should be practised, as affording greater safety.

This is the oldest conservative obstetrical operation, being the only alternative to craniotomy previous to the discovery of the forceps, and probably never reached a greater degree of perfection than in the time of Mauriceau, just prior to their introduction. It then fell into disuse until its revival by Sir James Y. Simpson. The mortality is generally estimated as in the proportion of one in sixteen for the mother and one in three for the child. The maternal mortality must be divided between it and the causes indicating it, as rupture of the uterus, placenta prævia, etc. It is especially indicated in transverse presenta-

tions and in contracted pelves. Simpson pointed out the fact that in flattened pelves, the base of the head being brought into the contracted brim was more readily moulded, and with less danger to the foetus, than if the vault presented. We have seen already that any pressure of the forceps necessarily increases the biparietal diameter presenting to the narrowed conjugate. This is obviated in version. We have no well-authenticated record of the delivery of a living foetus by version through a conjugate of less than $2\frac{3}{4}$ ". But even when it measures $3\frac{1}{4}$ " or $3\frac{3}{8}$ ", the result still depends upon the length of the transverse diameter. Where the narrowing also involves the justo-minor pelvis as well, version should not be attempted.

The majority of the profession approach version with timidity and hesitation. For the greater safety of the mother, and especially of the child, it should be done early, before the rupture of the membranes. It may then be performed by the combined method of Hicks, or, if seen sufficiently early in transverse positions, may be accomplished by external manipulation alone.

It cannot be questioned that in many of the cases in which evisceration or decapitation has been performed for impacted shoulder-presentations, the children could have been saved had the condition been discovered prior to the inception of labor, as it would have been were it the rule (as we have suggested) to examine the abdomen of every woman during the last month of pregnancy.

One danger arising from version is that of introducing some septic poison by the hand. This the operator should guard against by washing with a disinfecting solution. The hand should be introduced very carefully, to avoid wounding either the vagina or the uterus; and when the membranes are ruptured and the uterus firmly contracted, the woman should be completely anesthetized before the procedure is undertaken. After turning, time should be given the uterus to contract upon the receding parts. If the parts be rapidly dragged through, the chin will be tilted upward from the breast of the child, thus presenting an unfavorable relative diameter to the pelvis.

Hurried delivery before the uterus becomes fully dilated is likely to be attended by spasmodic contraction of the os around

the neck of the child, often so strong and protracted as to cause its death.

PREMATURE LABOR.

The induction of premature labor is more directly antagonistic to craniotomy than is any other obstetric operation. It was first performed by Macauley in 1756. He was induced to perform it by observing that in cases in which craniotomy had been necessary from distortion, an accidental premature delivery was attended with a living child. It is well known that the foetus is viable at the seventh month, though children have been known to live when delivered at six and six and a half months.

As the most frequent cause of craniotomy has been seen to be contraction of the pelvis, the operation should be obviated in the great majority of cases by the induction of premature labor. With this object in view, the physician should insist upon an accurate examination at the middle period of pregnancy in any patient in whom there is reason to suspect deformity of the pelvis. If the importance of it is explained to the patient, she will seldom refuse to submit to it. There certainly should be no question as to the advisability of this procedure in a woman who had previously undergone craniotomy. In order to determine the time at which premature labor should be induced, a number of measurements of the size of the foetal head have been made at different periods of utero-gestation, from which Ritgen has constructed the following table of practical adaptations. He says labor may be induced at the

29th week, when ant.-post. diameter of pelvis is	2" 7"
30th " " " " " "	2" 8"
31st " " " " " "	2" 9"
35th " " " " " "	2" 10"
36th " " " " " "	2" 11"
37th " " " " " "	3" 0"

It will be seen that there are two measurements of the pelvis limiting the operation. If the pelvis exceed the greater, it is uncalled for, and if less than the smaller, it will not succeed in saving the child. All authorities agree that the smaller of these diameters is about $2\frac{1}{2}$ " and the greater $3\frac{1}{4}$ ". If the conjugate be less than the former, no viable child can pass, while a living child at full term can be propelled through a pelvis measuring $3\frac{1}{2}$ " in the anterior-posterior diameter. Ramsbotham

performed this operation some sixty times without any apparent unpleasant results upon the mother. For the safety of the child, great care should be exercised to avoid rupturing the membranes. Labor should be induced by hot douches, by separation of the membranes, by the bougie, and by the careful use of Barnes's dilators in the os.

With the knowledge of the chance for life afforded the foetus by this operation, the repetition of craniotomy upon any woman whose pelvis measures over $2\frac{1}{2}$ " in the conjugate should be considered an evidence of neglect and to the discredit of the profession.

The procedure is equally applicable to cases in which the obstruction is due to the presence of tumors or atresia of the vagina. It may be combined with version or the use of the forceps.

ABORTION.

The advisability of abortion has been suggested in order to obviate the dangers and necessity of Cæsarean section. If the operation were ever justifiable, it would be in a first pregnancy, when it was discovered early that the pelvis was small; but we must confess to sharing in Radford's scruples to performing it a second time or a number of times upon the same individual. Aside from the moral stand-point, there is an objection, in the cases to which it would be applicable, in the inability to deliver the placenta if retained after abortion has been produced.

Symphiseotomy, proposed by Sigault in 1769, and practised for some time with disastrous results, has again been revived in Italy, and seems destined to become an important factor in the delivery of women with contracted pelves. In fifty cases with which Dr. Harris* presents us, forty women and forty-one children were saved in women with pelves varying between $23\frac{3}{8}$ " and $3\frac{1}{8}$ ". As these were cases in which craniotomy had before been thought necessary, the value of the procedure is self-evident. In these cases version was not practised, except where there was transverse presentation, but labor was allowed to proceed normally. Forceps were used in about one-fourth the cases.

We can imagine that with the aid of this procedure we should be able to deliver

viable children through a smaller pelvis than $2\frac{1}{2}$ " in the conjugate.

CÆSAREAN SECTION.

There still remains a class of cases who cannot be delivered by any of the above-mentioned methods, upon whom Cæsarean section must be performed. The British authorities, from their unfortunate experience with this operation, have endeavored, as far as possible, to abolish it from the list of operations, and consequently recommend craniotomy in pelves with the conjugate $1\frac{1}{2}$ ", or even less. Their disastrous results can be explained, however, when we consider that, from the objection to its performance, it is postponed until the woman is exhausted and her vital forces are no longer sufficient to rally from the shock of any operative interference. The researches of Harris have shown that in twenty-seven cases where the operation was done early, during the first twenty-four hours of labor, twenty women, or $74\frac{2}{3}$ per cent., were saved, and twenty-two children, or $81\frac{1}{3}$ per cent., rescued alive, four of whom died during the following week. Dufrillay has shown that in timely operations, 81 per cent. of mothers are saved. This at first may seem too favorable a result, but it is not any better than ovariectomy; and why should a Cæsarean section be more fatal than an ovariectomy? If the physician has determined in a case (as he should be able to do) that the living child cannot be delivered *per vias naturales*, he should proceed without delay to Cæsarean section. Every hour of delay increases the peril of mother and child. The operation should, of course, be done with antiseptic precautions. Had such a course been the rule, instead of the timidity and hesitation that have characterized obstetrics in the last century even, the results of Cæsarean section would have been more brilliant, if possible, than those of ovariectomy. Were such the practice, the craniotomist would stand on the same level as the abortionist.

The success of abdominal incision for the removal of a foetus which has escaped from the uterus through rupture has been so much greater than Cæsarean section that Harris has objected to having the results of such cases included in the statistics of the latter operation. Yet we have an irregular wound in the uterine walls, instead of an incised one. The favorable results in

* American Journal of the Med. Sciences, January, 1883.

these cases are due simply to the fact that the attendant no longer has an excuse for temporizing, and an operation is done while the woman is in possession of her vitality. These results should teach us the importance of early action.

The opinion of the majority of authorities is opposed to the administration of anæsthetics for the performance of this operation, as they have a decided tendency to relax the uterine contractions and increase the tendency to hemorrhage. The necessity for their use, and all pain, can, however, be obviated by an ether spray upon the surface before incision.

LAPARO-ELYTROTOMY.

Thomas, in order to obviate the dangers of the peritoneal and uterine incision in Cæsarean section, revived the operation of laparo-elytrotomy, which consists in making an incision parallel to Poupart's ligament from the anterior superior spine of the ilium to the spine of the pubes, down to the peritoneum, pushing it off, tearing into the vagina, and delivering through the os. It may be done upon either side, though preferably upon the right. It is subject to the following objections.

1. The os must be dilated or dilatable.
2. The firm adhesion of the peritoneum resulting from the wound would preclude a second operation upon the same side, and the contractions of the vaginal canal would render it difficult even upon the opposite side.
3. The danger of wounding the bladder.

Notwithstanding these objections, this procedure should be the elective operation over Cæsarean section where the os is well dilated and the woman is exhausted by long-continued efforts to deliver herself, as these are the cases that bear the latter operation poorly.

Porro's operation consists in the ablation of the uterus and ovaries after removal of the fœtus. This operation has been attended by gratifying success in the Italian and German hospitals, where the Cæsarean operation was almost invariably fatal. This operation has been opposed because it unsexes the woman and destroys her reproductive powers. But of what value are her reproductive organs, if it be deemed necessary that the fruit of the womb shall constantly be destroyed upon maturity, and that, too, at the risk of her own life? Better, far better, from every point of view, that she be placed sexually at rest.

Although this operation should be done early to insure the best results, yet it is quite probable that it would afford the woman greater safety than Cæsarean section where the labor has been long and tedious and the uterus exhausted and relaxed by its strenuous and unavailing efforts to extrude its contents.

We do not question the advisability of craniotomy where the fœtus is certainly dead; but even then, when delivery can be accomplished by the forceps or version, they should be preferred for the mental effect upon the woman.

Upon the living child our researches lead us to the following conclusions. Craniotomy is unjustifiable, as, 1st, it considers only the life of the mother, and destroys that of the child, while it is our duty to endeavor to save both. 2d. In pelves with a conjugate diameter greater than $2\frac{1}{2}$ " we have other alternatives equally safe for the mother, which afford the child a chance for life. These alternatives we would suggest in the following order. Where the conjugate measures 3.25" or over, the forceps; 2.75" or over, version; $2\frac{3}{8}$ " or over, symphyseotomy, followed, if necessary, by the forceps. In all subsequent pregnancies, and in the first, when distortion is discovered sufficiently early, premature labor should be induced. 3d. In pelves measuring less than $2\frac{1}{2}$ ", Cæsarean section affords better results for the mother, and should be done whether the child be living or dead.

In a limited number of cases (where the os is dilated) laparo-elytrotomy may be preferred to Cæsarean section. In all cases requiring it, operative interference should be early. The obstetrician should control events, not be controlled by them.

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NOTES ON THE BLOOD-CHANGES IN ERYSIPELAS.

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THE following notes on the blood-changes in erysipelas are founded upon the observation of some thirty cases of the disease, in most of which the condition of the urine and the temperature of the body were examined, as well as the microscopic appearances of the blood. Be-

sides these cases, thirty-one cases more were seen, in which the temperature, and frequently the condition of the urine alone, was examined. Some twenty-eight of these sixty-one cases were seen in the erysipelas wards of the London Hospital, Whitechapel, London, during the summers of 1880 and 1882, the remainder mostly in the erysipelas wards of the Philadelphia Hospital, Philadelphia, Pennsylvania, during the winter of 1880-81.

A portion of these notes were included in an inaugural thesis (University of Pennsylvania, 1881), from which a short abstract, with comments, has been made by Dr. A. Stillé in his article on "Erysipelas" in Ashhurst's "International Encyclopædia of Surgery."

The writer is fully aware of the incompleteness of these notes, but, as his removal to a country where the disease is seldom seen has put a stop to his further investigation of the subject, he is obliged to present it in its present form.

The plan adopted was to examine with high magnifying powers (one-fifth to one-twelfth inch objectives) freshly-drawn specimens of the blood of patients suffering from erysipelas, and in comparison with healthy blood obtained at the same time, noting the rapidity of the post-mortem changes, as well as abnormalities in the proportion or appearance of the elements themselves. The presence of foreign organisms in the blood was also diligently sought for, at the same time care being taken to prevent the introduction of any such organisms during the process of abstraction and examination.

From time to time dried specimens were prepared and preserved for future reference. The temperature of the patient at the time of abstraction of the specimen was usually noted, and in many cases a quantitative and microscopic examination of the urine was made. In some cases these observations covered only one or two days of the course of the disease, whilst in others they extended throughout the whole, numbering in one instance fifteen. The examination of each specimen lasted from a few minutes to as many hours, and numerous drawings were made of the conditions observed. Several attempts were made to inoculate rabbits, and a few experiments were made upon specimens of healthy and the diseased blood with dilute solutions of certain drugs.

The red corpuscles in a number of cases were noticed to be of less average diameter than in health, and measurements showed this average to be at times more than one-tenth less than that of the red corpuscles of normal blood. This condition was more noticeable at the height or during the early part of the decline of the disease than in its first stages, and is not characteristic of erysipelas alone, as Manassein* states, from over forty thousand measurements made in one hundred and seventy-four animals, that septicæmic poisoning, and probably also traumatic fever, causes a reduction in the size of the red corpuscles, and that the same result is caused by increased temperature and sojourn of the animal in a space surcharged with carbonic acid gas, and that the means which reduced the temperature of the animal brought about an increase in the size of the corpuscles. According to Vanlair and Masius,† this diminution in the diameter of the red corpuscles occurs also in microcythæmia.

In cases in which the temperature was high and the inflammation of the parts extensive, the red corpuscles exhibited a marked tendency to adhere to one another in masses, and not in well-formed rouleaux. In many such cases the corpuscles seemed to have lost, in a great measure, their natural elasticity, and had become so softened as to permit of being drawn out into spindle shape or filamentous form by the application of but the slightest force. This condition became very marked at times when the corpuscles seemed to have almost entirely lost their definition and looked like streams of yellow fluid crossing the field of the microscope. Decolorization as well as crenation of the corpuscles generally took place rapidly.

Moxon and Goodhart‡ mention this tendency of the red corpuscles to adhere to one another, and the absence of well-formed rouleaux, as occurring in a case of typhus fever, but do not mention having seen it in any of the score or more of observations made of blood in erysipelas and other diseases. I have myself examined also a few cases of pneumonia, typhoid, and typhus, but have only met with this condition of the blood in typhus, in which,

* Med. Centralbl., 1871, No. 44. Wagner's Gen. Path., Am. ed., p. 518.

† Bull. de l'Acad. Royale de Méd. de Belgique, 1871.

‡ Guy's Hospital Reports, 3d ser., vol. xx., 1875, p. 240.

however, there was no increase in the proportion of the white corpuscles,—a fact noted in the article on typhus in Reynolds's "System of Medicine."

Hirschfeld* states that there is also an incomplete formation of rouleaux in pyæmia.

In most cases of erysipelas the proportion of the white corpuscles was found to be increased, averaging as high as one to thirty of the red in one case, and one to fifteen in another. In each of these cases the temperature of the patient ranged between 100° and 104°, the proportion of the white corpuscles varying from day to day.

The diameter of the white corpuscles in several cases was considerably less than in normal blood, and in one case was hardly greater than that of the red. The white corpuscles did not exhibit any tendency to adhere to one another, but were occasionally seen adhering to the red.

Moxon and Goodhart† found in the blood of several persons affected with traumatic erysipelas an increase in the proportion of the white corpuscles, but in others this condition did not exist. Dr. H. Vandyke Carter, in his work on spirillum fever,‡ mentions that, following the height of the pyrexia in that disease, leucocytes appear in increased numbers; various degrees of leucocythæmia have also been observed in certain other diseases.§

In nearly every specimen of erysipelalous blood examined, numbers of small, round, highly-refractive bodies, of slightly reddish hue, were observed. These bodies were of varying diameter, averaging about .002–.003 mm. The smaller ones were invariably globular, and were noticed in larger numbers after the height of the febrile attack, increasing as the white corpuscles became less and less abundant, until convalescence was established, when they were only occasionally seen. These corpuscles were sometimes seen adhering to one another, but rarely to either the white or the red. If a small bubble of air were allowed to penetrate a specimen under a cover-glass, not unfrequently would these bodies alone be seen gath-

ered along its edges. These globules were at first thought to be the so-called elementary corpuscles of Zimmermann, and are somewhat similar in description to the hæmatoblasts of Hayem.|| Lemner also describes a red granular corpuscle (*rothe körnerkugel*) occurring in normal blood.¶

While Vanlair and Masius** have observed small bodies occurring in microcythæmia similar to those already described as occurring in erysipelas, and which they describe as not exceeding .003–.004 mm. in diameter, brightly shining, of the same (or even deeper) color as the red corpuscles, their surface is smooth, and they do not aggregate; and further it is stated that at first when observed they were equal in number to the red corpuscles, but increased to fifty and one hundred to one red; and as the patient became convalescent the microcytes disappeared. Dr. J. H. Kidder, U.S.N., in a "Note on the Microscopic Appearances of the Blood in Scarlatina and Typhoid Fever,"†† mentions having seen similar globules occurring in the blood in scarlatina. It seems, however, from Dr. Kidder's micro-photographs and the accompanying description, that these globules found in scarlatina are somewhat smaller than those of erysipelalous blood, although otherwise closely resembling them. Gamgee‡‡ states that similar globules have been met with in pernicious anæmia, which are described as being much smaller than normal-colored corpuscles, having a diameter varying between 3 μ and 3.5° or 4 μ ; they are not bi-concave, but globular, and are of a deeper red color than normal blood-corpuscles. In one case these corpuscles are said to have been present in the ratio of one to five of the normal corpuscles.

Micrococci were noticed in numbers in only five cases, all of which were severe. The first was a case of relapse following an attack of facial erysipelas, in which both eyes were almost completely closed, and the parotid gland on one side and the lymphatics of the neck were more or less involved. There was also delirium. The urine of this patient decomposed very rap-

* Arch. d. Heilk., 1873, xiv. p. 193. Wagner's Path., p. 602.

† Quoted by Stille in Ashhurst's Internat. Encyc. of Surgery.

‡ Review, Lancet, October 21, 1882, p. 568.

§ See J. T. R. Davison on Pathology of the Blood in Inflammation, Lancet, vol. i. No. xxv., 1882, p. 1028, and vol. ii. No. xxi., 1882, p. 884.

¶ Recherches sur l'Anatomie normale et pathologique du Sang, Paris, 1878, p. 108.

¶ Alex. Schmidt, Pt. 2 Pflüger's Archiv f. d. ges. Physiol., vol. xi., 1875, p. 560.

** Wagner, Gen. Path., p. 518.

†† U. S. Surgeon-General's Office, Washington, 1881.

‡‡ Animal Chemistry, vol. i. p. 155.

idly and was loaded with bacteria. The second was a case of gangrenous erysipelas attacking the right lower extremity, and ended fatally. In the discharge from the leg large numbers of bacteria were detected. In the third case the whole leg and thigh were involved. This case also ended fatally. The fourth case was that of a negro, in whom the disease exhibited itself in the arm and shoulder, from which later on an incision gave outlet to a large quantity of pus. In the fifth, the least severe of the number, bullæ formed on the face. In only one case were active organisms observed, the specimen examined having been taken from the affected part only half an hour before death, and at a time when the limb was infiltrated with pus. It was observed in these cases that active bacteria developed with considerable rapidity in the diseased blood kept in capillary tubes, even when it had been exposed to the air for but a few seconds during the process of abstraction.

In one instance, beautiful blood-crystals developed in a clot taken from the bulb of a capillary tube within three hours after its withdrawal from the circulation. Wagner* mentions that in the blood of the dead from leucocythæmia there have been found at times colorless elongated octahedral crystals, probably derived from an albuminoid body.

A specimen of erysipelatous blood from one of these same cases was preserved in a capillary tube for eighteen months, at the end of which time it was carefully opened in some sterilized gelatin, and four days later, on examination, bacteria were observed in the gelatin. Unfortunately, however, the accidental cracking of the tube containing the sterilized substance rendered the result of the experiment somewhat unreliable.

Various attempts to reproduce the disease in a young healthy rabbit by inoculation of blood and urine from patients suffering from erysipelas were made on several occasions, but without success. In one experiment, ten drops of bloody serum drawn from the unaffected arm of a negro, suffering from a severe attack of erysipelas in the other arm and shoulder, were injected under the skin of a rabbit, the normal temperature of the animal having first

been ascertained to be 100.8° , and the number of red and white corpuscles to the cm. to be 4,500,000 and 15,000, respectively. The temperature of the negro at the time of the abstraction of the blood was 103° , and he had had a severe chill on the night previous; but the temperature of the rabbit was only increased to 101.4° by the inoculation, and fell to 100.2° the next morning, from which it continued to vary but a fraction of a degree during the remainder of the time observed.

The proportion of the red and white corpuscles apparently remained unaltered, and the microscope revealed no other abnormality in the appearance of the corpuscles in the specimens of its blood examined on the same or following days. For a day or two the rabbit seemed ill, but soon recovered entirely. Ten days later, another attempt at inoculation was made, when fifteen drops of urine from a patient suffering from a severe attack of facial erysipelas were similarly injected. This urine was loaded with bacteria of several varieties; yet no ill effects followed its injection, and the blood continued to present a normal appearance under the microscope.

That foreign organisms exist in the secretions of erysipelatous wounds, as well as in tissues affected by erysipelatous inflammations, has been already demonstrated by Heuter, Orth, Koch, Tillmans, Fehleison, and others; but that they exist to any extent in the circulating blood in erysipelas does not, so far as I have been able to ascertain, seem to have been proved. M. Béchamp mentions their physiological presence in normal blood,—not, however, in any considerable number.† I have seen a fine micro-photograph,‡ after Koch, from erysipelatous skin, showing the micrococci *in situ*, and recently Fehleison§ has found micrococci to be constantly present in the lymphatic vessels of the skin in parts invaded by the inflammation. Moxon and Goodhart mention that they observed "beaded strings" in several specimens, but that these were not constantly present in all specimens of the blood in erysipelas examined. The observations made in connection with the preparation of this paper rather point to

* Philadelphia Medical Times, October 21, 1882, p. 51.

† Exhibited by Mr. W. W. Chene, of King's College Hospital, at a recent meeting of the Medico-Chirurgical Society, London, 1882.

‡ Lancet, November 4, 1882, p. 771.

the rare occurrence in the blood of any considerable number of micrococci or other foreign organisms, except, as already stated, in very severe cases, when an absorption of pus had probably already taken place.

The results of the few attempts to inoculate the disease by hypodermic injections of blood and urine from patients affected with erysipelas, although negative, are recorded, as showing that in some cases at least inoculations may fail to induce the disease in the rabbit. This seems to have been the case in the majority of Tillmans's Leipsic experiments on rabbits (quoted by Stillé in "Ashhurst's International Encyclopædia of Surgery"), when out of twenty-five inoculations only five were successful, although the liquid inoculated contained bacteria in every case. Orth says that bacteria are not found abundantly in the blood of the infected animals.* Orth concludes that the secretions are capable of producing erysipelas by inoculation; that bacteria are generated *pari passu* with the development of the disease; that bacteria stand only ultimately related to the septic cause of erysipelas; that they may be removed from the infecting liquid without destroying its activity, and that it is probable in the different forms of the disease that different micro-organisms occur, although no proof of this latter proposition exists. (Stillé.) Fehleison,† in endeavoring to ascertain whether the micrococci he found in the lymphatic vessels of the skin in the parts invaded by the inflammation could be considered as the vehicles or cause of the infection, succeeded in producing an erysipelas with characteristic pyrexia in a woman æt. 58, suffering at the time from multiple fibro-sarcomata of the skin, by inoculations of cultivated micrococci of the fourth generation from these organisms taken from the inflamed lymphatics.

In the larger number of specimens examined by myself, fine granules were seen, both free and in masses, but were only in a few cases in excess of those seen in normal blood.

The rapid formation of a net-work of fibrin under the cover-glass was a noticeable feature in nearly all specimens of erysipelatos blood. The bands of fibrin appeared generally to start from granules or

granular masses. Gamgeet‡ states that the blood in erysipelas, as in all diseases where an acute inflammatory process involves an organ of any magnitude, yields much fibrin. Dr. J. F. R. Davison§ mentions that he has found certain fibrin-forming cells (undeveloped red corpuscles?—Norris) numerous in diseases in which serous or purulent exudations exist.

Finally, a few experiments were made to note the effect of weak solutions of the tincture of the chloride of iron upon specimens of normal and diseased blood. It was found that a mixture of the proportion of one drop of the tincture to the ounce of a 1070 sp. gr. salt-water solution, added to specimens of blood of double the bulk, materially affected the behavior of the red corpuscles, which in the case of healthy blood became somewhat hardened and contracted, rebounding, as if hard and elastic, when impinging upon one another, and failing to form into rouleaux; and in blood from a patient suffering from erysipelas these corpuscles seemed to lose their sticky appearance. This effect of the tinct. ferri chloridi was most marked with the weaker rather than the stronger solutions, and possibly may have been due to the astringent properties of the tincture.

From the fact that the exhibition of iron has proved of considerable value in the treatment of erysipelas, it may not be uninteresting, in connection with the foregoing experiments, to reproduce here the results of analysis of normal blood by Andral and Gavazett in two cases after exhibition of iron:—||

First Case.

	Previous to use of iron.	After use.
Water in 1000 parts	866.7	818.5
Fibrin	3.	2.5
Blood-corpuscles	46.4	95.7
Residue, serum	83.9	83.3

Second Case.

Water in 1000 parts	852.8	831.5
Fibrin	3.5	3.3
Blood-corpuscles	49.7	64.3
Residue, serum	94.0	100.9

It will be noticed in the above table that an increase in the proportion of blood-corpuscles took place after iron had been administered, and that at the same time

* Arch. f. Exp. Pathol. und Pharm., vol. xix. p. 357.
† Loc. cit.

‡ Phys. Chem., p. 163.
§ Gamgee, Phys. Chem., p. 152.
|| Loc. cit.

there was a corresponding decrease in the amount of fibrin present.*

Without attempting to indicate in what form the poison of erysipelas exists, either within or without the circulation, it seems nevertheless probable that the red corpuscles of the blood are in some special manner affected and their function as oxygen-carriers modified. In support of this may be mentioned the appearance of the corpuscles themselves under the microscope when first withdrawn from the circulation, their rapid decolorization and crenation, and the apparent readiness with which they give up certain component parts towards the formation of blood-crystals, as well as the apparent lowered vitality of the blood itself, as indicated by the rapid formation of active bacteria in it after withdrawal from the body; and, further, the known value of iron in the treatment of the disease, together with its known action upon either the corpuscles themselves or upon corpuscle-production;† whilst the appearance of erysipelas of the face on the right side in thirteen out of fifteen cases of that form of the disease observed (a fact most probably accountable for in the differing blood-supply of the two sides), and a tendency to periodic recurrence noticed in these cases and others, tend to support the position by pointing to the blood in general as affected.

Dr. Stillé,‡ in commenting upon the above-mentioned condition of the red corpuscles, says, "In a case of Kollman,§ of Leipsic, in which repeated hemorrhages took place, fatally exhausting the patient, it is probable that such blood-changes existed in a high degree. To them also may be attributed the altered action of the heart and the hæmic murmurs heard during life, and more immediately the fatty granular change sometimes found in the cardiac muscle."

The part which micrococci or other foreign organisms play in these changes has yet, perhaps, to be determined. P. Zweifel,|| however, has recently advanced the hypothesis, based upon various experiments, that, as normal blood, by being deprived of its oxygen without being exposed to the influence of atmospheric germs, can become poisonous and acquires septic proper-

ties (certain specimens of non-deoxygenated blood also containing micrococci having been proved harmless), therefore no pathogenetic property is inherent in the organisms found in these experiments, unless these micrococci can form a poison in the blood as soon as there is no more oxygen to be consumed.

Assuming this proposition to be true, it will be seen that any interference with the functions of the oxygen-carriers of the blood would at once bring about the necessary condition for further pathological change through the medium of these organisms. Further, we are told that bacteria produce acid secretions, and Gamgee says¶ that all acids and salts having an acid reaction decompose hæmoglobin with the formation of hæmatin, a result which would ordinarily be prevented in the general circulation by the amount of alkalinity of the blood necessary to life, yet which nevertheless might readily occur in certain localities, as, for instance, in portions of the skin or in parts rendered tumid by previous inflammation. Again, any softening of the substance of the red corpuscles would probably increase the tendency of these corpuscles to leave the circulation and wander out, as the leucocytes are well known to do in numbers in inflammation.

These micrococci, therefore, found in the blood, in the lymphatics, and elsewhere, if harmful at all in the blood, can be so only when that fluid has lost some of its normal vital resistance: so we must go a step farther back, and inquire as to what this diminished resistance may be due. If we assume that the alterations of the red corpuscles, as already described, be a principal factor in the altered condition of the blood, which we know by clinical experience does exist, we should then expect to find that those remedies which tend to increase the tone of this element of the blood, or the supply of red corpuscles, would also be serviceable in treatment of the disease, which we know to be the case.

It is certainly the case that in the large majority of patients attacked by this malady there has previously existed an impoverished condition of the blood, brought on either by lack of proper nourishment, improper mode of living, debilitating disease, or some other depressing cause.

* See also H. C. Wood's *Therapeutics, Materia Medica, and Toxicology*, p. 91.

† Wood, loc. cit.

‡ Loc. cit.

§ Loc. cit.

|| *Zeitschrift für Physiologische Chem., Phila. Med. Times*, vol. xiii. No. 388, 1882, p. 14.

¶ *Phys. Chem.*, p. 90.

As to the possibility of the characteristic tailing and alteration of the red corpuscles noted being caused by an excess of fibrin-forming substances in the blood, or increased tendency of fibrin to form, I would refer to an article by Mrs. Ernest Hart,* in which she shows, by a process of fixing with osmic acid and staining by rosaniline, a tailing of certain corpuscles (third corpuscle of Norris),† analogous to the fully-developed red corpuscles, which she believes to be a source of the fibrin of the blood; and, further, to the articles (already quoted) by Dr. Davison, in which he states that there is an excess of fibrin-forming corpuscles (undeveloped red corpuscles) in all inflammatory blood.

TRANSLATIONS.

THE DIAGNOSIS OF TUBERCULOSIS OF THE LARYNX.—In opposition to the opinion usually held by authorities upon the subject, B. Fränkel teaches that in the majority of cases local tuberculosis can be recognized as such by its laryngoscopic appearances. This observation applies not merely to the more characteristic forms,—those cases in which isolated tubercles in the larynx appear, or tubercular infiltration, in which firm inflammatory oedema, especially over the epiglottis and the arytenoid prominences, rapidly leading to extensive destruction, occurs, both of which are easily recognized,—but especially to the tuberculous ulcer, a form of laryngeal phthisis which, according to most authors, is the least characterized, and the diagnosis of which requires confirmatory evidence by physical examination of the lungs, or remains doubtful. On the contrary, Fränkel holds that the *ulcus tuberculosum* is sufficiently well marked to be recognized from the macroscopic appearances alone. This is especially the case when the lenticular ulcer, so well described by Virchow, is present. Tubercle appears in the larynx first in the mucous membrane under the epithelium; then, from the rapid destruction of isolated or congregated masses of tubercle, there arises a superficial ulcer, which spreads more on

the surface than it does deeply. The borders are rounded, and show an inflammatory area. The floor is bacon-like or caseous, and is covered with more or less detritus. In many cases there are also deposited in the walls of the ulcers, and in the larynx during life, miliary and submiliary granulations; but when these grayish, semi-translucent granulations are not found, the lenticular character of the ulcer is still sufficiently characteristic. It is not the color of the mucous membrane, and not the location of the ulcer, *but its form and its physical characters, upon which the greatest stress is laid in the diagnosis.* At the same time, it is not denied that there is a group of cases in which the diagnosis cannot be made simply by macroscopic examination. The complications with tubercular infiltration, and diseases of the cartilages, alter the image and give rise to appearances difficult to describe. In the course of time the lenticular ulcer itself loses its character, and it then gets deeper, and the glands become involved, so that forms arise which have no distinctive or characteristic appearance. In such cases it becomes necessary to corroborate the diagnosis, and it is customary to fly to other organs, such as the lungs; but cases have occurred in which the diagnosis remained for a long time in the dark. Since Koch's discovery of the specific bacillus of phthisis, however, a new means of determining the character of this ulcer has been provided. Fränkel recommends that the patient shall be requested to cough, so as to clear the pulmonary secretions out from the larynx, and then, with the aid of the laryngoscopic mirror, the surface of the ulcer is to be carefully wiped with a small brush, so as to obtain some of the specific secretion from the laryngeal region. Following Ehrlich's method of staining, the portion removed can be next examined microscopically for the bacilli, which, if present, establish the diagnosis as tubercle. The author examined sixteen cases for bacilli, and only experienced difficulty in one of them: in this there was so little secretion that he was unable to obtain any pus for examination. In the remaining cases he had succeeded, by following Ehrlich's method, in establishing their character. In three there were no bacilli; these cases suffered with constitutional syphilis. In the other twelve cases bacilli were found, in nine on first examination, in two on

* Quarterly Jour. of Mic. Science, July, 1882, vol. xxii., N. S., pl. xxi.

† Norris, in Physiology and Pathology of the Blood, London, 1882.

second, and in one on the third trial. On repeating the experiment, he found the bacilli in the greater number of these cases again on first examination.

He further considers the value of the positive knowledge of the nature of the case, not only from a pathological point of view, but also from that of practice, in its effects on treatment and prognosis, and contends that the absence of bacilli permits a negative conclusion to be drawn. Among eighty cases in all, which he had examined, he declares that it was very seldom that a third examination of the secretion of the ulcer was required in order to establish its character. This permits a diagnosis between a tuberculous and a syphilitic ulcer to be made positively in cases otherwise doubtful.

Although negative testimony is ordinarily of limited value, the author claims that this expedient will generally enable us to decide as to the pathology of obscure cases. The method is also applicable to cases of pharyngeal tuberculosis and other varieties of tubercular ulcer. For the present, however, he considers it sufficient to point out a method by which, during life, we may, with full certainty, succeed not only in diagnosing tubercular ulcerations of the larynx as such, but also by which we are enabled to distinguish them from other forms of laryngeal ulceration which are not tuberculous. Further experience has only confirmed his views, and he states in conclusion that whenever we are able to obtain some of the secretion from a laryngeal ulcer, if it be tuberculous, the positive evidence—that is, the presence of the bacillus—is a rule almost without exception.—*Berlin. Klin. Wochenschrift*, January 22.

THE DISINFECTION OF TUBERCULAR FLUIDS.—In a communication presented by M. Vallin to the Academy of Medicine of Paris, based upon inoculative experiments upon guinea-pigs with simple tubercular fluids and those treated with various agents, the author expresses the following opinions: "The contagious principle of tubercle is susceptible of attaching itself to furniture and other objects, where for a very long time it preserves its virulence unimpaired, until the moment when it again comes in contact with a medium favorable to its development." This effect can be prevented by the use of certain

neutralizing agents, at the head of which he places sulphurous acid; boiling water occupies the second rank. A dilute solution of corrosive sublimate will have the same result, whilst nitrous acid is ineffective, even where comparatively large amounts are used.

In conclusion, the author recommends the systematic disinfection of hospital wards, prisons, infirmaries, etc., where phthisical patients have been treated, although the absolute efficaciousness of the means proposed has not yet been fully established.—*Revue de Thérapeutique*, February 1.

TREATMENT OF EPILEPSY.—At the St. Anne Asylum, under the care of Dr. Ball, the alkaline bromides are generally used, especially the ammonium salt. The following formula is given:

R Ammonii bromidi,
Sodii bromidi, aa 10 grs.;
Aquæ, 300 grs.—M.

A dessertspoonful to be taken in a cup of a weak infusion of valerian.

Of the above, four doses a day are used at the beginning, gradually increased to eight or ten if necessary.

In obstinate cases, the following pill—

R Ext. belladonnæ,
Zinci oxidi, aa 1 gr.

M. et in pil. no. 40 divid.—
may be given morning and evening.

Purgatives may also be needed, either as revulsives or to remove irritating substances, worms, etc., from the alimentary canal. Dr. Ball orders the following:

R Aloës socotrin., 1 gr.;
Resinæ scammonii,
Resinæ jalapæ,
Hydrarg. chlorid. mitis, aa .50 gr.;
Saponis (amygdalin.), q. s.

M. Ft. pil. no. 24. Of these, three are to be taken night and morning, once a week.

The bromides of ammonium and sodium are preferred, they being well suited for this purpose by the great facility with which they are tolerated, even in large doses, by their prompt and sustained effect, by the absence of all phenomena of depression, and, finally, by the services which they are able to render in the cases where the bromide of potassium is without effect.—*Revue de Thérapeutique*, No. 3.

LOCOMOTOR ATAXIA SUCCESSFULLY TREATED BY ELECTRICITY.—At the meeting of

German physicians and scientists at Eisenach, last September, Dr. Th. Rumpf reported two cases of locomotor ataxia greatly benefited by the use of faradic electricity applied with the brush, and in whom the symptoms had not returned after several years. He uses a current not quite strong enough to cause pain. One pole (the anode) is applied to the sternum; the other (the cathode), represented by the brush, is applied in rapid succession to the back and lower limbs. The duration of the application is ten minutes. The effect upon the lancinating pains is quite marked, and common sensation is greatly improved. In cases where the disturbances of sensibility and pain are very marked, and the disease is not too far advanced, this method gives praiseworthy results, which are unattainable by the older methods of treatment.—*Berlin. Klin. Wochenschrift*.

NEW THEORY OF URÆMIA.—Feltz and Ritter, of Nancy, having found that simultaneous ligation of both ureters caused a sensible increase, in the blood and in the serum, of the potassium salts, in spite of the supplementary gastro-intestinal excretions, conclude that the alkaline salts follow the same laws as the urea and extractive matters, which increase in the blood under these circumstances. The graver accidents of uræmia, however, do not coincide with those caused by the accumulation and retention in the blood of urea or extractive matters, but, on the contrary, correspond with the phenomena produced by the intravenous injection of fresh normal urine, or of equivalent solutions of potassium salts in distilled water. The authors therefore consider themselves warranted in admitting that the true agents of uræmic intoxication are almost always the potassium salts which have accumulated to excess in the blood.—*Revue de Thérap. Méd.-Chir.*, No. 3.

NEW METHOD OF ANÆSTHESIA.—A mixture of nitrous oxide gas and oxygen in the proportion of eighty-five to fifteen, according to Dr. De Saint-Martin (*Comptes-Rendus de l'Académie des Sciences*), is capable, under ordinary circumstances, of causing analgesia without anæsthesia. It may be inhaled for a long time without any inconvenience. If used according to the method of Paul Bert, in a room in which the air-pressure is increased, com-

plete anæsthesia also may be obtained with this agent. Where it is desired under ordinary pressure, the same effect may be obtained by adding six to seven parts of vapor of chloroform.—*Revue de Thérapeutique*, No. 3.

SURGICAL TREATMENT OF UMBILICAL HERNIA OF INFANTS.—The treatment of this condition has not been very satisfactory, and only rarely has it been successful in keeping the children alive. Generally, in the lighter grade of cases the expectant treatment is pursued, and in graver cases the restoration of the viscera to the abdomen, and the application of antiseptic bandage so as to make compression. The ligature has been used to the neck of the sac, and it has at times been successful, but it has also been followed by a fatal result.

Krukenberg has reported a case in which the large hernial sac contained a part of the liver and colon; he restored the viscera, and, under rigid antiseptic precautions, opened the sac, dissected it out, and ligatured the edges with ten silk ligatures, only fourteen hours after birth. The wound was dressed antiseptically with a compress and bandage, and complete recovery followed.—*Archiv für Gynaekologie*, Bd. xx. Hft. 2.

PROPHYLAXIS AGAINST PHTHISIS IN HOSPITALS.—From a series of experiments upon tubercle-inoculation, and the effects upon the process by different disinfecting agents, M. Vallin has found sulphurous acid the most efficacious in preventing contagion. He therefore recommends that, in hospital wards where the air is infected by tuberculous patients, from time to time the rooms shall be vacated and thoroughly fumigated with sulphurous acid.—*La France Médicale*; *Comptes-Rendus de l'Acad. de Médecine*.

ERYSIPELAS IN THE STOMACH.—A case in which an attack of facial erysipelas extended to the pharynx and thence into the stomach is reported in *La France Médicale* (No. 75). The symptoms were pain in swallowing food, tenderness in the epigastric region, and obstinate vomiting for five days,—a feature which might be thought to be due to meningitis, but this supposition was promptly removed by the observed fact that there was a complete absence of other cerebral symptoms.

**PHILADELPHIA
MEDICAL TIMES.**

PHILADELPHIA, MARCH 10, 1883.

EDITORIAL.**PROPOSED LEGISLATION FOR THE
INSANE.**

IN a previous issue of this journal we printed, without comment, an analysis of the proposed law concerning the insane now under discussion at Harrisburg. The law seems to us, after careful consideration, a good one, but it is, we believe, being bitterly opposed by the asylum medical superintendents, both singly and collectively. We do not positively know what paragraphs are especially obnoxious to the superintendents, but are told that their hostility is especially directed against the free admission to the asylums which is secured for the outside medical profession, and the increase of their own responsibility. Under existent law, when a patient has once been legally committed to an asylum, he can be detained there indefinitely by the superintendent until he forces his way out by the legal processes, and the superintendent then be held harmless, even though he has kept a man of sound mind twenty years in the mad-house. This is of course wrong. The practical difficulty of guarding against this wrong is that a law devised for such purpose might readily expose the honest superintendent to vexatious suits and even unjust verdicts.

The proposed enactment protects the honest alienist just as far as an efficient law can. The section affirms that no penalty shall attach to a too long detention of a convalescent, "unless the judge, after trial and verdict, shall certify that there was proof to his satisfaction that the party charged acted with gross negligence or corruptly, or that he acted without reasonable or probable cause, or was actu-

ated by motives other than the good of the person restrained." It would be better, perhaps, to amend this section by eliding all after "corruptly;" but, even as it now stands, certainly no judge would certify unless he had a very clear case to deal with. The judge has to take an active, not merely an acquiescent, responsibility. Opposition to any change in this respect of the present law is to be expected from those whose peace of mind and body is endangered; but it seems to us that it is not unjust that the superintendents be required to face responsibilities which fairly belong to their office.

Objections to medical visitation seem to us far less justifiable than the opposition we have just been discussing. We suppose there are few practitioners of medicine who really believe that most hospital superintendents are skilled in the treatment of diseases other than those to which their attention is habitually directed. We believe ourselves that the superintendent who really knows and has had practical training in the treatment even of nervous diseases (not mental) is an exceptional man. Most of these gentlemen have spent their lives in asylums away from large cities, and have had no outside facilities for familiarizing themselves with affections not belonging to their specialty. That an insane man should be forced, when he has a typhoid fever, to stake his life upon the skill of a physician whom no sane man would ever employ to treat a fever, is preposterous. It is but just that those interested in the life of the brain-sick man should have the right to protect such life as best they can when another vital organ is attacked.

In the past we have rather sided with the hospital superintendents in their difficulties; but it seems to us that they are now drifting away from the well-settled sentiment of the profession; and we earnestly hope that our readers will examine the proposed enactment, and make their opinions understood by their legislative representatives.

THE NEW ANATOMY ACT.

THE bill now before the Legislature, submitted by a number of physicians of Philadelphia, will probably become a law. It is entitled "An Act for the promotion of medical science by the distribution and use of unclaimed human bodies for scientific purposes, through a board created for that purpose, and to prevent unauthorized uses and traffic in human bodies." Its provisions contemplate, primarily, the creation of a board of distribution, consisting of the professors of anatomy, the professors of surgery, and demonstrators of anatomy and of surgery, of incorporated medical and dental colleges, with one representative from each of the unincorporated schools of anatomy or practical surgery; the board so constituted being charged with the duty of apportioning and delivering unclaimed human bodies among the several institutions legally entitled to the same (the material needed for lectures and demonstrations by schools and colleges being first supplied) in proportion to the number of students in attendance upon their dissecting and operative surgery classes. Public officers having charge or control over unclaimed human bodies "shall, without fee or reward, deliver such body or bodies" to the board or its representatives. No such delivery shall take place, however, if objection is made by any of the kindred; and in case of a traveller dying suddenly, he shall be buried at the public expense. Persons having duties enjoined upon them by this Act will be liable to a penalty of from one hundred to five hundred dollars for neglect, refusal, or omission to perform the same as required.

The principal features in the former Act of 1866 are retained in this bill, which is a decided improvement upon the former in the fact that there will be a responsible board charged with carrying out the distribution of dissecting material in accordance with its provisions. The great objects

sought to be attained by the former law were the legalization of anatomy and the prevention of traffic in human bodies between different States. This was the famous Pennsylvania Anatomy Act, which originated in the College of Physicians of Philadelphia, Dr. Wm. S. Forbes being its author, and it was principally owing to his personal interest in the matter that it was adopted. It was entirely experimental, being the first law upon this subject in this commonwealth, and, although its author urged that its benefits be extended at that time over the whole State, yet, when passed finally, its provisions were restricted by the Legislature to Philadelphia and Alleghany Counties. Since then a similar law has been enacted by a number of the other States of the Union. The present Act is intended to extend over the entire State; it creates a special board charged with carrying out the distribution and delivery of unclaimed bodies; and, finally, it directs that public officers "shall deliver" such bodies, instead of leaving it optional with them, or subject to their permission, as in the former law.

ANTI-VIVISECTION AGITATION AGAIN.

AS an echo to the renewed agitation of the subject in England, a movement has been, quite recently, inaugurated in this city, with the avowed object of enlisting popular interest against vivisection. It is stated that a bill is to be offered at the present session of the Legislature restricting vivisection, which is intended to be followed soon by another, making the performance of physiological experiments upon animals a criminal offence. The statement is made that the second act will abolish it altogether; but, as this is manifestly beyond the power of legal enactment to accomplish, it is more correct to say that, if passed, it will, at the most, simply make it a penal offence for future investi-

gators to make such experiments upon any animal, even though carefully and humanely conducted and solely with a view to the advancement of that science which has for its great aim the alleviation of human suffering.

A public meeting held at Association Hall, March 2, was attended by some of our representative citizens, many ladies and gentlemen, and presided over by a judge of a civil court. Indeed, the new movement is being pushed forward with considerable vigor, its advocates in some directions perhaps showing more zeal than discretion.

It is unfortunate that in these public addresses the members of the medical profession, both inferentially and directly, are charged with defending and sanctioning wanton cruelty to the lower animals, although, in truth, we believe that they are, very generally, opposed to unrestricted vivisection and in favor of its regulation by law. It would be strange, however, if they, without protest, could permit themselves to be unjustly represented as devoid of the finer sensibilities of their critics, and as rendered incapable of humane feelings by their constant association with human suffering. A committee appointed by the College of Physicians will probably meet those interested in this movement, in order to frame a bill that shall be mutually satisfactory.

We dismiss the subject for the present with the observation that medical science recognizes physiological experimentation, when conducted in the proper manner, as a legitimate and necessary means of advancing research and adding to the store of knowledge. Experiments with new and old remedies upon animals will continue to be made, law or no law. If the supply of the lower animals is entirely shut off, we presume that it is intended that they shall be made on man, who still remains the unprotected prey of all experimenters, not excepting the medical and forensic.

LEADING ARTICLES.

A STUDY OF THE POISON OF THE HELODERMA SUSPECTUM, OR GILA MONSTER.

At the meeting of the College of Physicians of February 7, Drs. S. Weir Mitchell and Edward T. Reichert read a paper on a partial study of the poison of the *Heloderma suspectum*, or Gila monster. These gentlemen stated that for some years past it has been known to naturalists that the Gila lizard of Arizona and Sonora is endowed with anterior deciduous grooved teeth which communicate by ducts with large glands within the angle of the lower jaw, and that the existence of these arrangements suggests a certain power of poisoning, but as to which power very conflicting accounts reached them from Arizona. This creature, they said, had been kept in many houses as a pet of children, but seemed to be averse to using his weapons of offence. The occasional accidents from his bite were variously explained away, but among the Indians and settlers he enjoyed an evil reputation. Within a week they had received two letters from Arizona, one of which described him as "more peaceful and harmless than a young missionary," and the other as being "worse than a whole apothecary-shop."

This bad name of the lizard in Mexico is mentioned by Bocourt, Duméril, and Sumichrast, the latter being the fullest in his statements. According to Sumichrast, the lizard is slow and embarrassed in his movements, hides in the daylight, and especially in wet weather, to emerge at night and in dry seasons. He is said to have a nauseating odor, and is described as slobbering forth a sticky, whitish saliva when irritated. Sumichrast further says that the natives hold him in terror and consider him more fatal than any serpent. When the animal was made to bite a fowl, it died in twelve hours, with a bloody fluid exuding from its mouth, the wound being of purple tint. A cat bitten was very ill, but recovered, remaining thin and weak. The *Heloderma horridum* sent to Sir John Lubbock killed a frog in a few minutes, and a guinea-pig in three minutes.

Many years ago, Dr. Irwin, of the U. S. army, experimented on the Gila monster, and concluded it to be harmless; and Mr. Moran, of the National Museum, was

several times bitten without serious results. Dr. Shufeldt adds further difficulty in the making up of the estimate of the powers of the *Heloderma*. The lizard he speaks about, which was exhibited to the College by Drs. Mitchell and Reichert, was sent to the Smithsonian Institution by A. T. Burr, U.S.A., and is the *Heloderma suspectum* of Cope. Dr. Shufeldt, in company with Prof. Gill, while examining for the first time this specimen, was about to return the animal to its cage, when the left hand of the doctor, who was holding it, slipped slightly, whereupon the highly indignant and irritated animal made a dart forward and seized his right thumb in his mouth, inflicting a severe lacerated wound, and sinking the teeth of his upper maxilla to the very bone. The animal loosened his hold immediately, and he was placed in his cage.

Dr. Shufeldt stated that by suction with his mouth not a little blood was drawn; but the bleeding soon ceased, to be followed in a few moments by very severe shooting pains up his arm and down the corresponding side. The severity of the pains, with their unexpectedness and the nervous shock and rapid swelling of the parts, caused him to become extremely faint. The action of the skin was increased, perspiration flowing profusely. A small amount of whiskey was taken. The same night the pain was so great as to allow of no rest, although the hand was kept in ice and laudanum; but the swelling was confined to the hand. The following morning the swelling was greatly reduced, and in a few days the wound healed kindly. After the bite the animal is stated to have become dull and sluggish, simulating the torpidity of the venomous serpent after the infliction of its deadly wound.

The specimen shown by Drs. Mitchell and Reichert has eaten but once since they have had him; but the monster is said to live on bird-eggs and to eat daily of food while in captivity. The sluggish habits ascribed to the *Heloderma* in general are noticed in their specimen, and they think that it is clear from Dr. Shufeldt's accident that, like the habitually inert *Crotalidæ*, the creature is capable of sudden and unexpected agility in attack. They further stated that they expected in the spring a number of *Helodermas*, and would then be able to complete the study of the poison of these interesting lizards,—the only

members of the family of lizards as yet known to be poisonous.

The Gila monster, they said, inhabits the dry hill-sides of Arizona, and is said to reach the length of three feet. The specimen exhibited was about fourteen inches long, and had, from war or accident, lost his teeth, no new ones having taken their places; and without them he would certainly be as harmless as a rattlesnake deprived of his fangs. As these teeth are very small and easily removed, their absence may account for some of the instances in which the lizards have bitten and done no great harm.

Experiments made in the usual vague way, by allowing the lizards to bite animals, are obviously untrustworthy, so that they thought it best to use saliva in known quantities. The fluid was obtained by provoking the animal to bite on a saucer edge, which it was indisposed to do. When once it had seized the saucer it was hard to pull it away, so powerful was the grip of the animal's jaws. After a moment a thin fluid like saliva dripped in small quantities from the lower jaw. It was slightly tinted with blood, due to the violence of the bite, and it had a faint and not unpleasant aromatic odor. The secretion thus collected from the mouth was distinctly alkaline, in contrast to serpent-venoms, which are all acid in reaction.

The records of a number of experiments made by these gentlemen were then read. In the first experiment about four minims of the saliva above collected were diluted with one-half cubic centimetre of water and injected into the breast-muscles of a large, strong pigeon. In three minutes the pigeon was rocking on its feet and walking unsteadily, and at the same time the respiration became rapid and short, and at the fifth minute feeble. At the sixth minute the bird fell in convulsions, with dilated pupils, and was dead before the end of the seventh minute.

In comparing the effects of the lizard-poison with those of serpents, these gentlemen noted that the first contrast to the effects of serpent-venom was shown when the wound made by the hypodermic needle was examined. There was not the least trace of local action, such as is so characteristic of the bite of serpents, and especially of the *Crotalidæ*. The muscles and nerves of the animal above poisoned responded perfectly to induced currents

and to mechanical stimuli. The heart was arrested in the fullest diastole, and was full of firm black clots. The intestines looked congested. The spine was not examined.

Two experiments were also made on etherized rabbits to determine the effects of the poison on the blood-pressure and pulse. One of these animals was in a normal condition, and the other with cut pneumogastrics. To each of them was given one-sixth of a grain of venom dissolved in a little water and injected into the external jugular veins. In both animals the results were practically identical. In the normal animal the pressure fell to twenty millimetres in five minutes, and in the animal with cut pneumogastrics to thirty millimetres in one minute and thirty-five seconds. The pulse-rates in both animals were primarily diminished and then increased. The results of the experiments being so nearly identical, it may be considered that the effect on the heart is direct, and not by inhibition through the pneumogastrics.

The results of the autopsies, made immediately after death, were identical: heart arrested in diastole; heart does not react to induction currents; muscles everywhere respond to electric stimulation; motor nerves intact; cord unirritable, and will not respond to the strongest current produced by one large gravity cell with Du Bois-Reymond's induction coil; bowels still irritable; peristaltic movements occur spontaneously; the intestines are natural in color, as are all other organs. After five minutes the heart began to contract, and was finally found in a systolic condition. The interior of the organ was full of black clots, especially the auricles, the left ventricle containing but a very small clot.

In order to determine still further the effect on the heart, a frog was killed and the heart exposed, there being placed upon it a small portion of the dried venom. It was then found that an immediate but gradual fall in the force and number of the beats occurred, and that the heart was arrested in one hour and thirty-eight minutes. In another experiment in which the "cut-out" hearts of frogs were used, one of which hearts was poisoned, the poisoned heart was killed in forty minutes, while the other remained beating for some time after; and in another experiment on two pithed frogs with exposed hearts, on one

of which was placed some of the dried poison, after a while the poisoned heart was beating very feebly and did not fill with blood, while the normal heart pulsed firmly and filled well with blood at each beat.

These gentlemen then concluded that the poison of *Heloderma* causes no local injury; that it arrests the heart in diastole, and that the organ afterwards contracts slowly,—possibly in rapid rigor mortis; that the cardiac muscle loses its irritability to stimuli at the time it ceases to beat; that the other muscles and the nerves respond readily to irritants; that the spinal cord has its power annihilated abruptly, and refuses to respond to the most powerful electrical currents.

They further stated that this interesting and virulent heart-poison contrasts strongly with the venoms of serpents, since the latter give rise to local hemorrhages, and cause death chiefly through failure of the respiratory muscles and centres, and not by the heart, unless given in overwhelming doses. They lower muscle and nerve reactions, especially those of the respiratory apparatus, but do not, as a rule, cause extreme and abrupt loss of spinal power. Finally, they give rise to a wide range of secondary pathological appearances which are absent from *Heloderma*-poisoning.

Drs. Mitchell and Reichert said that there remains in their minds no doubt as to the fact that the fluid which drips from the mouth of *Heloderma* when it bites is a very active poison; that the present study was, however, limited in range, and that they cannot yet feel sure that the fluid in question comes from the glands now presumed from their relation to the teeth to be poisonous.

The briefest examination of the lizard's anatomy makes clear why it has been, with reason, suspected to be poisonous, and why it poisons with so much difficulty. Unless the teeth are entire, the poison abundant, and the teeth buried in the bitten flesh so as to force it down into contact with the ducts where they open at the crown of the teeth, it is hard to see how even a drop of poison could be forced into the wounds. Yet it is certain that small animals may die from the bite, and this may be due to the extraordinary activity of the poison and to the lizard's habit of tenaciously holding fast to what it bites, so as to allow time for a certain amount of absorption.

It is plain enough that a lizard as small as the one exhibited would be very unlikely to inflict a wound fatal to man; but it is possible that the larger animal—and it is said to reach a length of three feet—might prove a more efficient poisoner.

In the concluding remarks as to the nature of this poison they stated that the recent researches of Dr. Sternberg and Prof. Gautier have shown that human saliva may kill a rabbit in twenty-four hours, according to the former observer, and a pigeon in a few hours (he does not say how many), according to the latter, if a quantity of saliva has been concentrated by heat and so used. Prof. Gautier thinks the saliva, and all venoms, owe at least a part of their power to normal ptomaines or animal alkaloids, the products of putrefactive processes, and recalls to us the fact that most secretions are measurably poisonous.

The answer to these views, Drs. Mitchell and Reichert said, they will consider elsewhere and at length, but that it will be sufficient here to say that there is no resemblance between the symptoms caused by the known ptomaines and those produced by any of the venoms. When it was shown that healthy human saliva was competent to kill, it was natural enough to leap to the conclusion that the venoms were merely concentrated salivas. The analogy ends with the fact that both may cause death, but the one may kill in twenty seconds, and the other requires at the least many hours; whilst also it seems, as regards saliva, to be in some degree a question of the toxic activity of certain individuals, not all being so uncomfortably endowed as Dr. Sternberg himself.

CORRESPONDENCE.

LONDON LETTER.

FOR some time past a movement has been on foot to bring together the medical students of London, and the *Medical Union Society* has made its formal *début* before the public. It is intended to make a species of club, where the members can meet together, can read, can interchange courtesies and even ideas by means of debate. Such a scheme has much to recommend it. There are eleven hospitals in London, each of which has a medical school attached to it. Of course, even amidst

the profession of medical men in the great metropolis, it cannot be contended that each of the members of the medical staff at these numerous institutions is a decided genius, giving out coruscations of light. But, as matters stand, and have stood for some time, the students of each of these teaching institutions know little of other medical men except their own teachers; consequently these latter lose nothing by comparison, a means of measuring individuals which is distasteful to some of the minor hospital lights. As a rule, too, in the reports issued by various hospitals, little or nothing is said about the work done elsewhere than by the staff of that institution, unless it be abroad. It is safe to mention the work done by a foreigner. By such arrangements the student is safely fenced in, and knows little of what is being done elsewhere. Now, this may be all proper enough in the interests of the men who constitute the staffs of teaching hospitals. Of course, the better men do not care about nursing the student so solicitously, but there is the element of less able men who do care. Not only is it a matter of fees,—at the time of the student's career a positive element,—but there are the wider potentialities of other practice, with its consultations, to be borne in mind. Men perhaps know a little of some one other school beyond their own; and it must be admitted that in past days the conversation of two men educated at different schools in London, when comparing the luminaries of their respective hospitals, has had a mirth-provoking element in it, in the shape of the utter ignoring of all other metropolitan schools, and of medical education elsewhere on the face of the earth. The medical student of the present day has wider views than once sufficed his predecessors, and likes to peep beyond the precincts of his own hospital proper, to see what is done elsewhere. Nor can it be urged that this is other than desirable in the interests of his future patients as well as himself. So a movement was set on foot, which has prospered so far without much encouragement from the medical teachers of the metropolis, who, from what is said by those behind the scenes, have thrown cold water on the scheme, so far as they could. However, it was determined to have an inaugural evening. This was held on Wednesday, January 31, in the Holborn Town Hall, a central and convenient position, and was a decided success. Dr. Danford Thomas, the respected coroner for Central Middlesex, is the treasurer of the society, but the other officials are students in the strictest sense of the word. There was a preliminary exhibition of microscopic objects, chosen with special reference to the fact that a large number of ladies were expected to be present, and very beautiful objects were exhibited, the sight of which greatly interested the female element. Then there were some

surgical instruments (not obstetrical) on show, and also some fine photographs of several of our professional celebrities. A large number of both sexes had gathered together by the time Dr. B. W. Richardson, F.R.S., had reached the hall. The chair was taken by Henry Power, F.R.C.S., the ophthalmic surgeon to St. Bartholomew's Hospital, and the well-known editor of Carpenter's Physiology. In a few well-chosen words he introduced the deliverer of the address, Dr. Richardson, who strongly resembles the late illustrious Gambetta, and photographs of him were recently sold in both London and Paris for the French patriot-statesman. The acoustic qualities of the building were very unsatisfactory, and did not do credit to the mellifluous voice, which usually holds its audience rapt in attention. The doctor commenced by saying how much gratified he was by the request that he should deliver the inaugural address to the new medical association. He said the formation of this Union was a matter fraught with great interest in these sensitive times,—“sensitive,” because every one is becoming touched by the light of knowledge. Hitherto the learned professions had constituted the only lamps and fires of knowledge; but there was a general blaze coming, and it would be curious to see how they would stand the test of competitive light. He had had the inestimable advantage of what was a very good education in his day; but what was learned then was actually less than what was now open to every child (by the action of our School Boards). The professional fight was easy then, compared with now. He said the secrets and mysteries of the profession no longer hold the position they did with the public, with its increasing knowledge. The school boards now are decorated with better physiological and anatomical diagrams than professors possessed in his student-days; while the teachers in these schools constituted the most critical audience to be found anywhere. Our territory is invaded on all sides, and the fight to hold it will prove fiercer and fiercer every year. Once, too, when a man did a really good thing or made a useful discovery he gained a distinction at once brilliant and permanent. Now one discovery is soon eclipsed by another, and each is lost in the general advance going on. The medical profession is not backed by representatives in the ruling bodies of the nation, like the church, which has its spiritual Peers, and the law, which has no less than one hundred and twenty-two representatives in the House of Commons. The medical men in the House at the present time are four; yet sanitation is the work *par excellence* of the present. He was glad to see that their programme included ready access to the best reading of the time. Judicious reading, by which a man could compare and correct his own observations, was the best scheme of education for a med-

ical man. Here he quoted from the “History of Medicine,” written in Newgate Prison by Dr. Friend, once member for Launceston: “Every physician will and ought to make observations for himself, but he will surely arrive at the soundest judgment who compares what he sees and what he reads together. Were it not for this, the oldest physician would always be the best practitioner, and there would be no difference in respect to the theoretical part between an old woman and the most regular professor.” He then referred to the debates and discussions which they contemplated, and expressed his belief that such training would be of service to them after their student-career had given place to professional life. He felt bound to admit that, while student-life at some schools was admirable, there was much to be desired at other schools. The scene he personally had witnessed at the opening and prize-giving at one great medical school was such as to call for painful observations from outsiders on the class of men to whom they might one day have to commit their dearest interests. He then urged upon them the desirability of cultivating culture. Writing, as he was, the history of the medicine of this time, he begged that they would relieve him from the necessity of making any apologies for the student-life of the present time. He recommended the reading of other works than medicine. Above all things he advised the study of biography. He said, “A man who will begin as a student to learn the lives of great men of the past, and will pass from one life to another regularly until he has made as many of the great ones of the past his bosom friends as he can, will at all times be miles in advance of other men who have made no such friendships.” He then went into some practical details as to how a library should be formed, and some of the less studious youths present must have been rather staggered at the range he indicated. After this he reviewed the subject of debate as a factor in education. It was capable of doing much good, if conducted properly. A good speech should both tell at the time of delivery and “carry afterwards.” Mere brilliant-effect speech was of little real value compared to more lasting speech. Repartee might be stinging, but it was usually provoking, and little more. Such smartness had ruined many a good speaker. First let the subject of debate be well considered before it was discussed. In order to speak well, he advised his audience to cultivate the habit of listening to good speakers. He himself had done so for years, and had come to the conclusion that there are four classes of public speakers. First there are those who write out their speeches and then commit them to memory; these constitute the mechanical or phonographic type of orator. Then there is the group of natural orators, who can speak from the heart without preparation.

Then there is a third group,—viz., those who prepare their subject-matter carefully, but leave the words to come at the time,—the common-use type of speaker. Others carefully prepare a manuscript, and read therefrom; some of these are mere readers, others something more. He called this the group of refined or reasoning orators. Learning the piece by rote is all right for the actor, but for the orator it is labor in vain. The fourth division was the one he recommended to the medical student. Debate should play but a subordinate part. As to rapidity of delivery, he thought the rate of one hundred and thirty-five words per minute, adopted by John Bright, would give most satisfactory results. As to the relation of the Union to the future of medicine, he fervently hoped the bond of union commenced in student days would last throughout professional life. This was very desirable, since the strict professional etiquette of past days is dissolving away. Once, when a patient wished to change his physician or consult another, the first must be informed thereof. Now patients consult whom they like, and not a few visit several physicians in a day, and then compare what they have said, as if they were talking over the pictures of the Royal Academy. Nor was a return to the old strict etiquette practicable: therefore the profession must have unity of thought and act. "Attain," he said, "this common excellence, and the public will soon tire of making the merry-go-round from one practitioner to another, of turning them all inside out when the visits are completed, and of suggesting that the opinions they have heard are little more than accidental expressions of individualized habit, rather than the sound dictates of common science and common learning." He then pointed out that when union became too exclusive it became "a nuisance of nuisances." He said, "I know of nothing in life so small, nothing in life so conceited, nothing in life so selfish, as a family so united that it knows no family, loves no family, admires no family, except its own." (It is just this one-school family arrangement, at present existing, which this Union is intended to demolish, instituting something better and wider in its stead.) "Such families come usually to grief: they can't evolve." He continued: "Let the human family, not the medical, be that to which you are allied, in which all your deepest interests are involved, for which you live, and move, and labor." He then, in words of serious warning, pointed out how desirable it is never to issue any discovery to the world until it is an assured fact. The world was quick to take up any advance in our art, but it resented being cheated into praising something which gave promise, but which failed to make good that promise. Once disappointed, the world, like the individual, was chary about according its belief a second

time. ("Once bitten, twice shy," is a North-Country proverb.) At this very moment in the career of medicine it is coming under rebuke of this kind. A vague hypothesis as to the origin of one particular class of disease excited exaggerated expectations, on grounds lying away from the course of practical medical observation and research. The credulous world, believing the speculator, has leaped, naturally enough, to the conclusion that, by a grand stroke of discovery, one at least of the worst and most fatal of human diseases was about to be all but miraculously enchanted away. But time goes on, the disease remains unchanged, and the expectant world, seeing the vanity of the expectation, begins to turn round and to treat as a wanton delusion not only the speculation, but any measure of good which incidentally came out of it." (Oh, tubercle bacillus, you see what positive harm and what little potential good have come out of you as yet, despite the blare of trumpets with which you were received! Go hide for a while, till just views of you obtain.) After this the matter of preventive medicine was touched upon. The doctor got on his favorite topic, and brought it out rather humorously: "You have a race to run with the general public, and if you do not take care it will get ahead of you, and undermine your curative skill altogether by leaving you nothing to cure. You may boast of your physiological learning; but where will it be if the people get it up for preventive purposes as heartily as you? You may boast of your pathology; but where will that be if the causes that beget it are removed wholesale? Think only of the book of pathology that will be closed to you when the use of only one disease-producing agent—*alcohol*—is, as it surely will be, thrown entirely out of use, and such like other evil agencies that are entirely under human control. You may boast of your materia medica; but how long will that be wanted when men are wise and call for it as reluctantly as the members of the faculty do themselves when out of health? You may boast of your diagnosis, your prognosis; but when pathology is wanting, and materia medica is a ghost, of what use are they?" After an eloquent appeal for "absolute honesty of purpose" in all relations of life, he concluded his address with a hope for the prosperity of the Union.

A vote of thanks was then moved by Mr. Gresswell, student at Westminster Hospital, and seconded by Mr. Reade, student at St. Bartholomew's Hospital, and carried by acclamation. A vote of thanks to the chairman drew from him in his reply a hope that the Union, with its discussions and debates, would enable those who belonged to it to get out their knowledge readily. As an examiner of experience, he could say it often was difficult and tedious to get out of a candidate what he really knew, because he was in the habit

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rather of taking in information than extruding it. Among those present belonging to the staffs of teaching hospitals were a number of the teachers of St. Mary's; and beyond them, Mr. Arthur Durham, of Guy's, Mr. Walter Rivington, of the London, Dr. Southey, of St. Bartholomew's, and Mr. Spencer Cobbold, of the Middlesex; but, as a rule, the teachers were conspicuous by their absence. Nevertheless the *conversazione* was a great success. Some vocal and instrumental music followed; and then, last but not least, came Chang, the huge Chinese giant, with, decidedly least, the Male Midget, looking uncommonly like a wax doll, the size of an ordinary foetus at full time, perched on the giant's hand and held aloft, holding tight on to the thumb.

Such, then, constituted the first formal meeting of a Union commenced by medical students themselves, in their own interests, in England. In Edinburgh the Royal Medical Society for Students has existed for many decades, and has been credited with doing much towards giving a finish to the student which has stood him in good stead in after-days. Probably this Union will be copied elsewhere, where there are many medical students attending rival teaching institutions. For such a means of widening the student's experience is very desirable. One good end it will certainly achieve,—it will break down the close-borough element which still exists in medical schools, and which forms such a temptation to many men to move mountains in order to become attached to a teaching school, not so much from any intrinsic fitness to teach, as from a wish to cultivate the acquaintance of the student, first for a share of the class-fees, and ultimately for the consultation-fees forthcoming when the student enters practice. This it is which has led to the excessive resort to testimonials in order to obtain posts,—a resort which the Germans look down upon and the French scoff at. Anyhow, the student is beginning to see that wider acquaintanceships are becoming desirable; and it is very certain the public will do all it can to foster the scheme, which has every claim to respect.

J. MILNER FOTHERGILL.

NOTES FROM SPECIAL CORRESPONDENTS.

CHICAGO.

OUR medical schools are just now closing the regular winter course, Rush leading with a class of very nearly two hundred members.

On the occasion of the commencement exercises the faculty appeared upon the platform in the gown of the doctorate, this innovation

being in commemoration of the fortieth anniversary.

The faculty made a very satisfactory appearance in the black robes, and it is hardly a question that it is an improvement upon the somewhat heterogeneous and too business-like attire usually worn on such occasions. This custom, borrowed from our transatlantic neighbors, lends additional dignity to a ceremony that should be dignified and impressive. In the doctorate address the Code of Ethics was criticised, and the orator of the occasion urged that, as our National and State Boards of Health were made up of regulars and irregulars, and as the regulars and irregulars composing those bodies recognize each other as standing upon a common professional basis, and consulted, the profession at large, regular and irregular, also might fraternize on other occasions,—i.e., meet in consultation. This was entirely interrogative, the proposition, simply stated, being that since physicians who claim to differ radically in their methods of practice can meet to discuss sanitation and medical politics, they may also consult harmoniously upon therapeutic questions with advantage to the patient. Of course most of those present could hardly yield assent to this proposition. The commencement exercises took place at Central Music Hall, and the banquet in the evening was given at the Grand Pacific Hotel.

Chicago College will have about thirty-six graduates; the aggregate attendance at this school, however, is slightly less than last year.

Probably the new school, the College of Physicians and Surgeons, now in its second year, attracts a following from the older institutions. The Woman's Medical College closed its course on the 27th, with the usual exercises, fifteen ladies receiving the M.D. degree.

The free dispensary question is again attracting attention, as the old abuses are active. The distribution of relief from most of them is not always well judged. Indeed, the person often selected to pronounce upon the worthiness of applicants is entirely unfit for the service.

Almost every physician in this city has felt the necessity for some means which might give a degree of system to the employment of nurses for the sick. We are without a bureau of registration or agency of any kind keeping a record of this class of help.

February 28, 1883.

A BON MOT OF ARAGO'S.—“What are comets made of?” asked a French lady of the distinguished *savant*. “Madame, I do not know.” “Then what is the use of being an Academician?” “Madame, that I may be able to say I do not know.”

PROCEEDINGS OF SOCIETIES.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

A CONVERSATIONAL meeting of the Society was held at the hall of the Society, February 13, 1883. Dr. E. E. Montgomery read a paper entitled "Is Craniotomy Justifiable?" (see p. 387).

DISCUSSION ON CRANIOTOMY.

The President stated that it was desired that in the discussion particular attention should be given to the following points:

1st. Should craniotomy be performed more than once for the same patient?

2d. Should it be performed when the woman is the victim of cancer uteri, phthisis, or heart-disease?

3d. Should it be performed when the conjugate diameter is less than $2\frac{1}{2}$ inches?

Dr. Albert H. Smith said that time would permit only a partial discussion of the paper. He admired the author's boldness in attacking the generally-received opinions. Craniotomy is certainly an operation at times of great risk to the mother, but he was hardly prepared to assent to the sweeping position Dr. Montgomery had taken. It had been assumed in the paper that the operation is performed on living children; but this must be rare. Sometimes, indeed, the necessity for rapid delivery might involve the killing of the child, but in most of the instances the child is dead by the time the operation is decided upon. He had himself never, so far as he is aware, put the perforator into the skull of a living child, having always continued efforts at extraction until the last moments of its life. He felt obliged, also, to dissent from Dr. Montgomery's position that craniotomy is a necessarily dangerous operation to the mother. We can mutilate the head of a child without imperilling the mother, and the operation really offers the best method of removing a dead child, except in cases in which the life of the mother depends on taking the child through the abdominal wall. One of the dangers of craniotomy is too rapid delivery. If we perforate the head, and then draw quickly and rapidly, we lose the benefit of the wire-drawing and moulding power of the uterus. It is best to leave the child to be expelled—largely, at least—by the uterine action, compressing the head with forceps, but not dragging on it, which latter practice has been the cause of fatal results. Dr. Smith's method of procedure, when the pelvic dimensions are such (say antero-posterior diameter $3\frac{1}{4}$ to 3 inches) as to give hope of natural delivery, is to place a pair of Davis forceps on the child's head, and, if it is somewhat small, to make efforts at extraction as long as the mother's tissues will bear it. If these efforts fail, the child is probably already

dead. He then lashes the blades of the forceps together, and, introducing a closed perforator, lets the brain ooze out, closing the forceps slowly until the head is reduced. If no urgent symptoms occur, the delivery is allowed to proceed under the mother's own efforts. He has lost but one craniotomy case.

Dr. Smith did not agree with Dr. Montgomery's view that traction with the forceps should be made rapidly. It is true that the head may be pressing injuriously on the soft tissues, but this is only when it has really entered the excavation of the pelvis. He detailed a case in which the head of the child remained for a long while above the superior strait, until finally craniotomy was decided upon, and the instruments were sent for; but by the time they arrived the head had advanced, and a living child was finally born.

An answer to the question whether craniotomy is justifiable when the pelvic diameter is under $2\frac{1}{2}$ inches would depend on the method of delivery pursued by individual operators.

Comparisons of the results in ovariectomy and Cæsarean section cannot be safely instituted, because of the unfavorable conditions under which the latter is performed, unless the patient should be taken to a hospital, which would of course be a risk. In regard to the Porro operation, it should never be performed where premature labor could be substituted.

In cancer of the cervix, craniotomy is rarely justifiable if the bony canal itself is large enough. So many cases of cancer of the cervix have terminated with natural delivery that we see that nature is capable of relieving herself if given time.

As to the question, Is it justifiable to perform craniotomy twice? Dr. Smith thought the statement in the paper too sweeping. For his own part, he had urged premature labor after first craniotomy, and, it being refused, he had performed craniotomy a second time. He was glad to see that Dr. Montgomery had urged examination before labor. In this relation might be mentioned the instruments which had been invented for measuring the child's head.

Dr. Goodell said that the questions raised in Dr. Montgomery's admirable paper, being ethical ones, were very difficult to answer. He thought that repeated craniotomies were justifiable, because sometimes a living child had been born after several craniotomies had been performed. He objected to the statistics given by Dr. Montgomery to show the fatality of craniotomy, as being obsolete. Denman and Collins knew nothing of antiseptic methods, and they delayed the operation as long as possible, because they were not familiar with the use of the forceps. Death from craniotomy is generally due to

delay. Dr. Goodell does not think it necessary to wait until the child is dead, but as soon as the necessity for craniotomy is decided upon he proceeds at once to operate. In the majority of cases simple perforation of the skull and the breaking up of the brain are the only measures needed, and these are certainly not dangerous to the mother. He deemed it allowable to perform craniotomy more than once on the same patient, if need should arise; but in most cases of very bad deformity the induction of premature labor will be preferable. He would not hesitate to perform the Porro operation, and in certain cases would even teach preventive measures. Yet, on the other hand, to vindicate himself he cited the case of an insane girl, who was sufficiently rational to be allowed considerable liberty at an asylum in which she was placed, and who has twice given birth to illegitimate children,—children that will probably become insane and be a burden to the commonwealth. He had refused to remove the ovaries from this woman, although urged to do so by the superintendent of the asylum. His refusal was based on the ground that such an operation, since it did not quench sexual desire, would encourage prostitution, and that he would demean himself by performing it. In reference to the propriety of performing abortion in narrow pelvis, Dr. Goodell thought it best to leave the decision to the patient herself. He did not believe that Cæsarean section will ever be as successful as ovariectomy, because in the former the peritoneum is always found healthy and vulnerable, while in the latter it is found thickened by pressure and structurally changed. Again, in pregnancy the pelvic organs are gorged with blood, and therefore more prone to take on fatal inflammation. To illustrate this, he stated that he had last year performed in the University Hospital a most difficult ovariectomy, in which universal adhesions were present, and the omentum was so torn that its remnant was compared by one of the bystanders to the battle-flags after the late war. The woman recovered, with hardly a rise in temperature. On the day the operation was performed, a powerful, healthy negro was brought into the wards, who had been stabbed in the abdomen with a slender stiletto. The weapon was so blunt that the intestines were not wounded, and no internal hemorrhage took place, yet the man died from peritonitis.

As to the impropriety of performing craniotomy in hopeless cases of phthisis, uterine cancer, or cardiac disease, this was, to his mind, a question to be decided by the woman and her husband, not by the physician. We should decide the questions of ethics raised in Dr. Montgomery's paper by bringing them home to our own firesides, and especially to the bedside of those near and dear to us.

Dr. Parish, referring to the question as to

the propriety of performing craniotomy in a patient affected with phthisis, said that he would not subject a woman to the great dangers of the Cæsarean section in order to save a child that will probably die anyhow very soon. So in women affected with heart-disease the chances should be thrown in favor of the mother. Dr. Montgomery would be obliged to admit that, except perhaps in very contracted pelvis, craniotomy is an operation of much less danger to the mother than Cæsarean section, Porro operation, or gastro-elytrotomy. Successful results are more frequent than Dr. Montgomery's statistics indicated. Professor Ellerslie Wallace, for instance, had lost only three out of twenty-one cases. In the fatal cases the mothers were doomed before the operation, from too long delay. In pelvis of less than 2½ inches Dr. Parish prefers the Porro operation or gastro-elytrotomy, but in larger pelvis we get better results from craniotomy. He considered the mother's life as of more value than that of the child. In some cases the position of the fœtus will determine which operation is best. In face-presentation, the head being immovable in the pelvis, fatal results might be expected to follow the Cæsarean operation. Another point is that the patient may be very young, and it would be wrong to subject her to the greater risk of abdominal section, as her frame may become developed and later labors be successfully conducted. Such results have been known to occur. Further, we must note that craniotomy does not require so much skill as the Porro or Cæsarean operation. In these latter not only is a trained surgeon required, but also several skilled assistants; but the delivery of a woman has often to be accomplished by a single physician remote from help. One operator may perform craniotomy without assistance as successfully as with it.

Dr. W. S. Stewart said he understood that seventy-five per cent. of the cases of Cæsarean section perish: if this is true, craniotomy must be much the safest. He did not think we ought to be so ready to recommend, in general, premature labor, as it would be encouraging what is both legally and morally wrong. He detailed a case in which he delivered a live child from a patient on whom in a previous pregnancy craniotomy had been performed, and was convinced by the statements made to-night, and by his own experience, that were the Cæsarean only permitted, many deaths would result where neither operation would be necessary.

Dr. J. V. Kelley agreed entirely with Dr. Montgomery, especially as to the moral question involved. The child has an equal right to its life with the mother, no more and no less; and the plea that the mother has claims superior, by reason of family ties, is one not founded in justice. Neither have we anything to do with the question as to whether

the world would or would not be benefited by the birth of any particular child. The obstetrician should always endeavor to save life, and not to destroy it: the latter power belongs to God alone, and we have no right to rob Him of his attributes. Dr. Parry's statistics showed that in pelves of $2\frac{1}{2}$ inches or less, more women would be saved by Cæsarean section than by craniotomy, plus the number of children rescued, which was about seventy per cent.

Dr. Montgomery, in closing the discussion, said he could not agree with Dr. Smith as to the advisability of waiting until the child has died: such delay is as culpable as the direct performance of the operation, as it imperils the life of the mother. He did not in his paper advocate Cæsarean section in preference to craniotomy in a pelvis with a conjugate diameter greater than $2\frac{1}{2}$ inches, and the child dead; though if the child can, without additional risk to the mother, be delivered by the forceps or by turning, these should be preferred, on account of their effect on the mind of the mother. In pelves with a conjugate less than $2\frac{1}{2}$ inches he advocated Cæsarean section, though the child be dead, for statistics show better results for the mother. The practice of leaving the child after perforation of the head, in order that it should be moulded, was formerly followed, but discontinued on account of decomposition of the fœtus and septic infection of the mother. He regretted that no allusion has been made to the practice of symphyseotomy. Harris has lately published a paper upon the subject, showing the results of fifty-three such cases in the practice of Italian physicians; forty-three women and forty-two children were saved. When we have an operation which offers such results for the mother, we should not resort to one which is certain death to the child. In answer to Dr. Thomas, he said that much can be learned by external examination,—more, indeed, than by vaginal examination alone. The position of the child can be determined, and often malpositions corrected. If examinations were more common, attendants would be forewarned of complications, and be able to surround many patients with favorable conditions. Even under the most unfavorable conditions he thought that in pelves of less than $2\frac{1}{2}$ inches conjugate diameter Cæsarean section would be less fatal than craniotomy.

NEW YORK ACADEMY OF MEDICINE.

STATED MEETING, FEBRUARY 15, 1883.

FORDYCE BARKER, M.D., LL.D., PRESIDENT,
in the chair.

DR. WILLIAM H. DRAPER read a paper entitled "Diet in the Treatment of the Gouty Dyscrasia." The author said that the relations of food and nutrition, and the evolution of vital energy, to the etiology and treat-

ment of disease, were matters of the greatest interest and importance to the physician, and the fact that these questions were at present attracting wider and wider attention was an encouraging sign of the progress of scientific medicine. The author then referred in a few remarks to the commonly-accepted view of the pathology of gout, and said that in the traditional acceptance of the term it meant a specific arthritis, characterized by the deposit of uric acid salts in the affected joint; that, as a diathesis, it meant an accumulation of acid salts resulting from increased formation or defective secretion of the products of proteid metamorphosis. According to recent investigations, it would seem that the liver is an important factor both in the metamorphosis of the carbo-hydrates and in the formation or the arrest of urea. Certain facts seemed to point strongly towards a common origin for glycosuria and gout and the lithæmic habit. Dr. Draper referred to the chemical theory regarding the causation of gout and its allied disorders, that they are diseases of suboxidation, and, while a number of facts seemed to go to support it, the question was, however, involved in much obscurity. Again, gout is often attended by many symptoms of a nervous character, which led many to regard it as an affection belonging among the neuroses. He did not think it was possible to say at the present time that gout is a neurosis dependent upon some chemical process, or that it is primarily a chemical process determined by some neurosis. The treatment of the disease based upon the theory that it is a neurosis is more successful in the cases of acute joint-lesions, while that based upon the theory that it is due to suboxidation of food is most successful when directed against the constitutional vice. Considerations of the chemical theory of gout, or of the theory that it is a neurosis, did not necessarily invalidate the humoral theory of the affection.

The treatment of the gouty dyscrasia involved, primarily, complete combustion of food, of whatever character taken, and this was to be secured partly by the observance of dietetic rules, and partly by hygienic and medicinal treatment. With regard to the first, dietetic rules, regard must be had to the quantity and the quality of the food best adapted to maintain health and nutrition. The quantity of food to be taken could be arrived at only approximately. It varies according to the age of the patient, his surroundings, etc. Excess of food might be absolute or relative, in the first case being more than was required, and in the second case more than could be assimilated. The relation of the quantity of food in the production of the gouty diathesis is perhaps more important than that of quality. For the production of heat, farinaceous, oleaginous, and saccharine foods are especially indicated, while a nitrogenous diet is best adapted to the maintenance of health in

persons pursuing a mental occupation and who require but a small amount of animal heat. With regard to hygienic treatment, it embraces an abundant supply of oxygen; and with regard to medicinal treatment, drugs should be given which facilitate oxidation, etc.

Speaking more especially of the kind of food best accepted by patients with the gouty dyscrasia, he said they are usually better able to digest foods of a nitrogenous nature than of a non-nitrogenous; that these patients have limited power in the assimilation of carbohydrates; and with regard to restriction of diet, it should be first with reference to sugars, especially sugars about to undergo fermentation; second, farinaceous foods; and, third, fats. He had not found the uric acid theory of gout supported by clinical facts. Fermented preparations of alcohol should be avoided; beer should be entirely prohibited, as should also sherry, madeira, and port wine, and the less wine in general the better. Milk could usually be taken with much benefit by patients suffering from lithæmia; and most vegetables, especially those containing a minimum of starchy elements, could be used with safety.

DISCUSSION.

Dr. HADDEN had used very much the same line of treatment in the cases of gouty diathesis which had come under his observation during the past five years as that recommended by the author of the paper. Benefit had been derived from a diet composed pretty exclusively of nitrogenous food, especially in cases of a subacute and chronic nature. This plan of treatment, cutting off as far as possible saccharine and starchy foods, had been attended by a diminution of the urates in the blood and in the urine. Reference was made to the investigations upon birds in captivity and those in a wild state with regard to the presence of uric acid salts.

Dr. PUTNAM JACOBI thought the theory of suboxidation, as brought forward by Dr. Draper, was very interesting and quite true; yet it was no less true that the mere statement that substances did not act through their normal term of oxidation is not an explanation of this fact, or at least does not express in a word the influence of heredity upon the various manifestations of gout which present themselves. Reference was made to the experiments of Pettenkofer and Voigt, who had shown that the amount of oxygen taken up in the blood was in proportion to the amount of albumen stored up in the tissues. She said it was quite certain that the source of uric acid was by no means to be found in the incomplete development of urea. There was no constant relation between the excess of uric acid and deficiency of urea. She referred to the case of a patient in whom the gouty diathesis existed, and who suffered from profound hypochondriasis, verging on insanity; yet no lithates or quantitative excess of uric

acid could be found in the urine. She was cured by an exclusively milk diet. She confirmed the testimony of Dr. Hadden with regard to the benefit derived from the meat diet, but stated that it was difficult to induce the patient to carry it out fully.

Dr. PIFFARD said that seven or eight years ago he read a paper in which he gave utterance to nearly the same views which the author of the paper had expressed this evening, and also at about the same time when the paper just referred to was read,—viz., that gout is due largely to failure of complete oxidation of the peptones, which led to the formation of certain acids. He referred to the evil influence which he believed to be exerted specially by the wines and beer in the manufacture of which glucose was employed.

Dr. KINNICUTT spoke of the intimate relation existing between lithæmia and diabetes, and added his testimony to the experience related by Dr. Draper.

Dr. JANEWAY referred to the fact that while a purely nitrogenous diet had been recommended, it was also true that milk had been spoken of most favorably, which was well known to contain a considerable proportion of sugar,—sugar, too, which would admit of acid fermentation. It seemed to him that in the management of gouty patients the principal point was to avoid dyspeptic occurrences. This was sometimes accomplished best by a nitrogenous diet, while in other cases the reverse was indicated. If the neural pathology was to be accepted, he thought we should see gouty deposits much more frequently than we do among the numerous nervous patients with whom we all had to deal. According to his observation, however, gout was not of so frequent occurrence among nervous patients. When it did occur after some nervous phenomena, it was more likely to be due to the dyspeptic condition to which this had given rise than to the nervous affection primarily. He was more inclined to accept the humoral theory of the affection than that of the neural.

THE PRESIDENT said it had seemed to him that every case of gout was a problem by itself, dependent not only upon the hereditary tendencies, but also upon the habits and surroundings, of the patient, and that certain idiosyncrasies existed which made it impossible to lay down any special plan of treatment which would be adapted to all cases. For instance, there were gouty patients in whom a single strawberry would bring on an attack, in others a slice of watermelon would do it, and in others still, the least amount of roast meat; some could not take wine or malt liquors, while they might be able to take whiskey; etc. He thought there was danger in trying to generalize and deduce any general law applicable in the treatment of all cases alike.

Dr. FLINT was not prepared to offer any

opinion at present concerning a comparatively exclusive nitrogenous diet. He believed we must go to clinical observations to settle many of these questions, and that a sufficient number of cases should be treated according to this or that plan before any general conclusions were drawn. He should feel doubtful about accepting any views concerning the neurology or the chemistry theory of the affection. There are few diseases in which heredity is so manifest as in gout, and it is a disease which, as a rule, is only developed after a certain period of life has been reached. There are differences in persons concerning the existence of the dyscrasia. These were some of the facts which should not be overlooked in investigations regarding the gouty dyscrasia.

In closing the discussion, Dr. DRAPER said he had rarely found it necessary to restrict the patient to an exclusively nitrogenous diet; but when it seemed necessary to do so, the patient was usually more or less rebellious. He agreed with Dr. Flint's remarks with regard to the necessity for extensive clinical observation in order to draw sound general conclusions. He had found by experience that an animal diet agreed with the majority of gouty patients, and yet he was unable to explain why this was so; nor was he able to explain the idiosyncrasies which the patients had manifested to whom Dr. Barker had alluded. Every physician doubtless had seen similar cases. He could not agree with Dr. Janeway that the disease seldom manifested itself in nervous patients. It might not be manifest in arthritic lesions, but he thought we were often led to wrong conclusions in supposing that gout did not exist on account of the absence of the arthritic affection.

The Academy adjourned.

GLEANINGS FROM EXCHANGES.

MANGANESE IN THE TREATMENT OF AMENORRHOEA.—In a short communication to the *Lancet* (January 6), Drs. Sydney Ringer and William Murrell recommend permanganate of potash in the treatment of amenorrhœa, giving it in solution (P. Br.), or preferably in the form of a pill containing one grain, of which one or two may be administered three or four times a day. Their observations extended over a period of thirteen months and were made on sixty-nine cases. The most striking results have been obtained from the larger doses, a large one sometimes succeeding admirably after the failure of a smaller one. The remedy was given alone, and without anything in the way of accessory treatment.

The best results were obtained in young women from eighteen to twenty-five, who from some accidental cause, such as getting

wet or catching cold, have missed once or twice after having been regular, the menses usually appearing after a few doses. The remedy should be pushed just before the expected period, but may be continued for months without injury. In anæmic patients, where scanty menses or even amenorrhœa is present, the permanganate pills will usually bring on the discharge. That it does so directly, and not through its secondary effect or merely because of the action of the manganese in improving the blood, is shown by the fact that, although menstruation is re-established, the general state of anæmia itself is not much, if at all, affected by it. It is equally valuable in the anæmic and the plethoric. The beneficial effects in restoring the menstrual flow are not manifested in young women only, but are equally evident in cases of delayed menstruation after delivery in multiparæ. Some patients complain of pain in the stomach after taking the pills.

The authors have also given manganate of sodium and binocide of manganese, in the same doses, in amenorrhœa, with equal success. The effective agent in the treatment is, therefore, the manganese.

[On account of the powerful oxidizing action of the permanganate, it is perhaps advisable to swallow some food before taking the pills.]

PHYSIOLOGICAL ACTION OF CURARA.—It is known that curara may cause slight symptoms of excitation before the paralysis comes on. M. Couty has succeeded in isolating these symptoms by employing feeble extracts of *Strychnos triplinervia*, or small doses of certain native preparations. By these means, in dogs, a new phase of intoxication may be presented for ten or even twenty minutes. In the first instance the animal is agitated, jumping, scratching, barking, as if in a state of general hyperæsthesia. Then it presents half-choreic shocks or tremors; the pupils dilate, and are alternately dilated and contracted. The heart's action is increased or diminished in frequency; sometimes there is vomiting, micturition, or defecation; and there is always salivation. Finally, the central and peripheral temperatures are raised, and the excitability of the muscles and nerves becomes highly increased. With the native preparation of curara it is impossible to prolong this stage, and symptoms of paralysis soon become associated with those of excitement. The choreic shocks were found to be arrested by section of the sciatic nerve. Other experiments proved that the spasms originated from the spinal cord and were influenced by its preceding functional condition. If the cord was tied in the mid-dorsal region, and the curara injected, the spasms were still produced in the hind legs; but if, after the operation, the excitability of the posterior segment became lowered, the spasm was no longer produced in the hind legs. This dependence on a perfect functional

activity is a point of difference of these spasms from those produced by strychnine and by asphyxia. The action of small doses of curara is not, however, limited to the spinal cord. The diminished frequency of the heart continues after section of the pneumogastrics, and will even occur if the pneumogastrics have been previously divided. From these facts it seems that curara must not be regarded as entirely destitute of a "convulsivant" action, or of an action on the central nervous system.—*Lancet*.

ON THE THERAPEUTIC VALUE OF SULPHUROUS ACID IN SCARLATINA MALIGNA.—Dr. Keith Norman Macdonald, after denying the prevalent opinion that no reliance can be placed on any drug in cases of scarlatina, does not hesitate to affirm that, when properly applied, both locally and internally, sulphurous acid is by far the most efficacious remedy we possess. He continues, "I have had several opportunities of testing its efficacy in some of the worst cases I have ever seen, during the epidemic which has been rife in this town (Cupar Fife) for the last two months, and I am bound to say that, of all remedial measures in this disease, it is, in my opinion, the most reliable. My treatment is as follows. The moment the throat begins to become affected, I administer to a child, say of about six years of age, ten minims of the sulphurous acid, with a small quantity of glycerin, in water, every two hours, and I direct the sulphurous acid spray to be applied every three hours to the fauces for a few minutes at a time, by using the pure acid, in severe cases, or equal parts of the acid and water, according to the severity of the case. Sulphur should also be burned in the sick-chamber half a dozen times a day, by placing flour of sulphur upon a red-hot cinder and diffusing the sulphurous acid vapor through the room until the atmosphere begins to become unpleasant to breathe.

"In the worst cases, where medicine cannot be swallowed, this and the spray must be entirely relied upon; and the dark sordes which collect upon the teeth and lips should be frequently laved with a solution of the liquor potass. permanganatis, of the strength of about one drachm [of the solution] to six ounces of water, some of which should be swallowed, if possible.

"In cases presenting a diphtheritic character, the tincture of perchloride of iron should be administered in rather large doses in a separate mixture with chlorate of potash, and equal parts of the same with glycerin should be applied locally with a camel's-hair brush several times in the day; but, as in the majority of cases among children it is next to impossible to use a local application more than once, the spray and permanganate solution will then prove of great service."—*British Medical Journal*.

INDIAN ENTERIC FEVER.—Dr. R. H. Quill, Surgeon to the Army Medical Department, gives the result of an examination of the annual returns of the sick and wounded troops at Assirgarh, Central India, from 1875 to 1881. The station is completely isolated, and the conservancy carried out by the "dry-earth system." The contents of the latrines are emptied into a ravine two hundred yards from the station, twice daily. The drinking-water is carefully filtered. Every precaution is taken to avoid exposure to fecal impurity. During the period just mentioned, not one single case of enteric fever occurred among the troops. The believers in the climatic origin of cases of enteric fever in India very correctly point out that the principal victims of this fever are young soldiers, with little Indian service, and that the older men, with an Indian service of four or more years, are rarely sufferers from it. Without gainsaying this observation, or attempting to account for it, Dr. Quill would simply say that, for a space of five years, Assirgarh has been occupied by successive batches of young and unseasoned soldiers without the occurrence among them of any type of fever other than the mildest form of ague. The climate of Assirgarh is no better than that of many other stations in the Bombay Presidency, where enteric fever is of only too frequent occurrence; but its isolated situation, and the nature of its surroundings, lessen to a very great extent its liability to fecal contamination of any sort; and herein lies the reason for the immunity it enjoys from the presence of enteric fever.—*British Medical Journal*.

THE IMMEDIATE REMOVAL OF THE SECUNDINES AFTER ABORTION.—Dr. Paul F. Mundé, in a contribution to the *American Journal of Obstetrics* for February, expresses the opinion that "the future safety of the patient demands that the secundines should be at once removed after expulsion of the fetus, in every case of abortion in which such removal can be accomplished without force sufficient to injure the woman." He condemns without reserve the let-alone policy or the expectant treatment, and urges manual and instrumental interference as soon as the fetus has been expelled. When retained, the secundines are a fruitful source of trouble, in keeping up hemorrhage and inducing septicæmia, and the safety of the patient can only be secured by their early removal. The operation, however, is not entirely free from danger in unskilled hands, and is, therefore, to be performed with care: usually it only requires the fingers and dull curette, but in more difficult cases the placental forceps are recommended, aided by the Sims speculum and anæsthesia. A table of fifty-seven cases is appended, in which the author demonstrates from his own experience that the danger has been greatly exaggerated, he having lost of these only two cases (sep-

ticæmia and cellulitis), both of which may as well be attributed to the putrescent state of the membranes as to the efforts for their removal, as the symptoms of blood-poisoning had existed prior to the operation.

GLANDERS.—In examining microscopically, in the Imperial Health Office, Berlin, sections from the cadaver of a horse killed on account of glanders, Dr. Löffler and Professor Schütz discovered a delicate rod about the size of a tubercle bacillus. This they cultivated, until the cultivation had been carried through four generations. From this fourth generation of purely cultivated bacilli, a small quantity was inoculated into the nasal mucous membrane and into the shoulder of a healthy old horse. The animal began to be very feverish forty-eight hours afterwards, and at the point of inoculation ulcers developed, from which knotted lymphatic cords could be felt running to the tracheal and withers glands, so that in about eight days the horse presented all the appearances of a typical case of glanders. The bacillus was found in the diseased structures after death. Several repetitions of the experiment yielded similar results.

TREATMENT OF EPILEPSY BY CURARA.—The favorable report of Künze (*Neurolog. Centralbl.*, January, 1882) of thirty-five cases of epilepsy, with completely successful results in twenty-five per cent., incited Prof. Edlesfen to investigate this method. The formula used was—curara, 0.5 gr.; aq. dest., 5.0 gr.; acid. hydr. chlorii, gtt. j.; M., digere per xxiv horas, dein filtra. Of this, one-third is to be injected hypodermically every five days. No bad symptoms were observed after its use. Out of thirteen cases of true epilepsy three were permanently cured, three others were distinctly improved, six were not benefited, one still under operation promised well.—*Dublin Journal of Medical Science.*

CHINOLIN IN DIPHTHERIA.—Excellent results have been described by Seifert in the treatment of diphtheria by chinolin (*Berlin. Klin. Wochenschrift*, No. 22). In a series of cases, slight and severe, of diphtheria in adults, and in a smaller number of cases in children, the only case of death was that of a child, a year and a half old, rickety, ill nourished, and the subject of constitutional syphilis. Instead of the unpleasant tartrate of chinolin hitherto used, Seifert prefers a five-per-cent. solution of pure chinolin in equal parts of alcohol and water as a local application, and a one-fifth-per-cent. solution in water, with a little spirit and peppermint, as a gargle. The stronger solution was applied with a brush from once to four times daily, and a new brush used for each spot painted, those once used being destroyed by fire. Immediately after the application the patient feels a burning, smarting pain, which is soon removed by a little cold water and gives place to a feeling

of great relief, so that swallowing becomes easy, although before it was impossible; the fœtor speedily ceases, the membranes come away in slight cases within twenty-four hours, the glandular swelling quickly subsides, and the temperature rapidly falls to the normal. The only other treatment adopted was an ice cravat in severe cases.—*Lancet.*

THE PRACTICAL APPLICATION OF SPONGE-GRAFTING.—Dr. Hamilton has contributed a note to the *British Medical Journal* (January 6) with regard to his subsequent experience with sponge-grafting since the publication of his original paper. He has found that this plan of promoting the healing of deep wounds or ulcers is best carried out by using thin layers of sponge, not thick enough to interfere with drainage. One of these is applied with some pressure over the granulating surface, than which it should be somewhat smaller, so that it will not quite reach to the young epithelial border, otherwise it may be undermined at the periphery. As soon as this sheet of sponge has been appropriated by the granulations, another is superadded, so as gradually to build up the wound. He has found the freezing microtome of the proper size to furnish the best way of obtaining these sections of sponge.

When the ulcer or wound is in the lower extremity, he recommends moderate exercise, in order to favor the turgidity of the capillary loops and increase their functional activity, so as to stimulate the granulating process and favor the healing of the wound.

The authorities in Russia are evidently not in favor of the medical education of women. The lecture-courses at St. Petersburg have been closed, by order of the Emperor, after an existence of ten years. The government has deprived the institution of its buildings, and maintains that the institution had not sufficient means to carry it on properly. Subscriptions were promised, but every obstacle was thrown in the way of their collection. The experiment of female practitioners has evidently been a failure in that country at least.

THE CHOLERA.—The report telegraphed to Madrid by the Spanish Consul at Suez, stating that cholera was raging among the pilgrims on the road between Medina and Mecca and that there was great mortality at the former place, is discredited at Alexandria. The Sanitary Commission has no knowledge of the reported outbreak; but an order has been sent to enforce strict quarantine at Moses's Wells. Reports of the same tenor were received during November, but it is declared that there are now no more pilgrims at Mecca or Medina.—*British Medical Journal.*

REDNESS OF CARBOLIC ACID.—A. Sicha confirms Fabini's assertion that the liability of

phenol to turn pink arises from the presence of copper. Phenol, which he prepared by distilling entirely from glass vessels, remained white for months in the sunlight; but when to fifty grammes of this phenol ten drops of a solution of copper sulphate (one to four hundred) were added, the pink color was formed after six days, and in two months became very intense.—*Journ. Soc. Chem. Ind.*

SULPHURATED CAMPHOR LOTION.—The use of a formula of this description is often indicated in skin diseases, especially in pimples on the face. The following combination of M. Vigier's is much used in the Hôpital Saint-Louis:

R Aquæ rosæ,	250 gm.
Spt. camphoræ,	30 "
Sulphur. præcipitat.,	20 "
Pulv. acaciæ,	8 "

M. secundum artem.

ERGOT IN ACUTE SUPPURATIVE ARTHRITIS.—At the recent session of the French Association for the Advancement of Science, Dr. De Musgrave-Clay reported a case of suppurative inflammation of the elbow-joint treated with large doses of the fluid extract of ergot, the arm being kept upon a splint. The patient was only 6 years of age. Rapid diminution of heat, pain, and suppuration ensued, and a recovery with a useful joint rapidly occurred.

TETANUS FOLLOWING HYPODERMIC INJECTIONS OF MORPHIA.—A case is reported by Dr. W. A. Ross (*Michigan Med. News*, November 10) of Fräulein L., 40 years of age, who was admitted into a hospital at Stuttgart, suffering with tetanus. Her health had been poor, she was anæmic, and had been under treatment for dyspepsia in this same hospital, from which she had been discharged only the day before her attack. The only assignable cause ascertained for the disease was the punctures resulting from the hypodermic needle, she having been addicted to the use of morphia by this method, and her arms showing many recent wounds as the result. Death occurred on the sixth day, partial relief having been obtained for a few days from the use of curara.

MISCELLANY.

MUSK-RAT.—This American product is not in need of protection by tariff, but the high price of true musk seems to bring it, the native article, in demand. Fortunately, the breeding qualities of the animal are so great that extermination is impossible. Hundreds of acres of land right on the borders of New York, it is said, cannot be reclaimed because it is impossible to prevent the ravages of the

Fiber sibethicus. In case of war with Holland, all that would be necessary would be to send a moderate schooner-load of these industrious rodents to that country, and it would be drowned out of a certainty. The musk-like secretion is contained in a gland of the size of a small pea near the sexual organs. For the manufacture of fine soaps, this American musk is said to be invaluable, since it is almost as good, and goes as far, as genuine musk; besides, its strong odor is rendered mild by the alkali in the soap. If used for perfuming soaps, some time is required to improve and develop the odor. After a block of soap, perfumed with rat-musk, has been allowed to lie for a few months, only a very fine connoisseur can recognize the difference in odor from genuine musk.

IMPORTANT discoveries have been made in British Guiana of two species of india-rubber-yielding trees of a character which insures their future profit to the colony. One is known to the aborigines by the name of *hatie*. It is about sixty feet high, with a trunk-diameter of twenty inches, and is found on the alluvial, oft-flooded lands on the creeks and banks of the lower parts of the rivers, where in places it is abundant. The second is not scientifically known, as flowering specimens of it have not yet been obtained. It is one of the largest trees of a forest flora peculiarly rich in large types. The trunk is four or five feet in diameter, and runs up straight sixty or seventy feet unbranched, above which the head extends many feet more. On its discovery, recently, a few branchlets could only be obtained by shooting them off with large shot. The bark is thick and wonderfully rich in milk of excellent quality, and the elasticity and tenacity of the rubber seem to be unsurpassed.

HOSPITAL FOR CHILDREN'S CONTAGIOUS DISEASES IN NEW YORK.—Dr. A. Jacobi, in his annual address as President of the New York State Medical Society in 1882, advocated the establishment of a special children's hospital for contagious diseases on Manhattan Island, and the subject was referred to a committee to secure the necessary legislation. This committee reported at the recent meeting that a grant of fifty thousand dollars, and a building-site at the foot of Sixteenth Street, New York City, had been contributed by the city authorities. The building will be pushed ahead rapidly during the spring and summer, and will accommodate from forty to sixty patients.

THE COLLECTIVE INVESTIGATION COMMITTEE of the British Medical Association, suggested in Prof. Humphry's address in 1880, is now in active operation; sub-committees have been formed, with local secretaries, in the various districts, and the work has been taken up in an encouraging and enthusiastic manner. Inquiries have been prepared concerning acute pneumonia, chorea, and acute rheumatism;

those on diphtheria, syphilis, and the contagiousness of pulmonary phthisis will be pushed forward this year, and will doubtless elicit some valuable and interesting results.

THE WATER-CLOSET'S DOOM.—An ingenious German has invented a plan for the manufacture of gas from human fæces. These are decomposed in a retort by heat, the chief products being a light-yielding gas, carbonic acid, tar, oil, and ammonia. As in ordinary gas-works, the tar and oil are separated, and the light-yielding gas purified for use. There remain in the retorts the ash-constituents with a portion of carbon, which the inventor designates coke. The authority for this description, *Der Techniker*, informs its readers also that a Breslau hotel has already been successfully lighted by means of this novel and presumably economical gas.

BORDEAUX RED, A NEW WINE COLOR.—A new red substance that has been introduced for coloring wines, under the name of Bordeaux red, or *Rouge végétal*, has been analyzed by Guichard, who reports (*Jour. de Pharm.*) that it is a naphthaline dye. It is said that one gramme (fifteen grains) is sufficient to color five litres of wine a deep red (three grains to the quart). For the detection of this dye in wine, Thomas makes use of its action towards silk and ammonia. It dyes the silk a granite red, and is turned brown by ammonia.—*Polytech. Notizblatt*.

A DEATH FROM THE DICHLORIDE OF ETHYLENE occurred at the Liverpool Eye and Ear Infirmary recently, in a man 26 years of age, who sought relief from a piece of steel which had flown into his eye and penetrated the lens only half an hour before. The same issue of the *British Medical Journal* which gives an account of this case also reports another death from chloroform, this time in a child only 5 years of age. She had taken it twice before without bad symptoms.

"GOOD TEMPLARS' SPARKLING CHAMPAGNE," largely sold for the use of teetotalers in England, has been recently analyzed, and found to contain twenty-five per cent. of proof spirit. Of three samples of "non-alcoholic" sacramental wine analyzed, one contained eighteen per cent. of proof spirit, another ten per cent., while the third was as represented.—*Canadian Pharmacist*.

GERMAN EYE AND EAR INFIRMARY.—In the year 1882 there were gratuitously treated at the German Eye and Ear Dispensary, 314 Noble Street, 1516 patients, of which number 1028 were for eye diseases and 488 for ear diseases. The number of important operations performed in the institute was 135, of minor, 175. Surgeon in charge, Dr. M. Landesberg.

APPLICATIONS FOR CHILBLAIN have been recommended (*New Remedies*) as follows.

Where the skin is broken, yellow wax fifteen parts, rape oil fifty parts, yolk of egg one part, acetate of lead five parts. Where the skin is unbroken, tincture of iodine two parts, ether fifteen parts, collodion fifty parts. Carbolyzed cosmoline is also a good application to relieve the burning and itching.

THE THIRTY-FOURTH ANNUAL SESSION of the State Medical Society will be held at Norristown, Wednesday, May 9, 1883, at ten A.M. All who desire to present papers at this session should send the title, and time required for reading the same, to Dr. J. O. Knipe, Chairman Committee on Programme, without delay.

W. B. ATKINSON,
Permanent Secretary.

SPIRIT OF TURPENTINE is now made from sawdust and refuse of the saw-mill. It is extracted by a sweating process, and yields, per cord, fourteen gallons of spirit, three or four gallons of resin, and a quantity of tar. The spirit produced has a different odor from that produced by distillation.—*Oil, Paint, and Drug Reporter*.

REGULATION OF PROSTITUTION is to be tested again in Cleveland. Weekly examination of the women in the brothels is to be practised, and women found to be diseased are to be sent to a special hospital and cared for at the expense of the proprietor or owner of the property.

NOTES AND QUERIES.

TO THE EDITOR OF THE MEDICAL TIMES:

SIR,—The picture of a medical man "befouling his own nest" is not an edifying spectacle.

As it does not appear that the Surgeon-General of the Navy either asked for or desired a transfer of the Marine Hospital Corps to his department, Dr. Hamilton's uncalled-for onslaught on medical officers is an insult to the profession and disgraceful to the service he represents. No man with a particle of fine feeling or *esprit de corps* is ever guilty of making egotistical comparisons for the sake of bolstering up his own reputation at the expense of others; nor should an officer vent his spleen upon the National Board of Health or a naval bureau by washing the professional linen in public, as an advertisement for himself and his department. No wonder the profession is looked down upon by politicians, when its dignity is thus prostituted. C.

OFFICIAL LIST

OF CHANGES OF STATIONS AND DUTIES OF OFFICERS OF THE MEDICAL DEPARTMENT U.S. ARMY FROM FEBRUARY 17, 1883, TO MARCH 3, 1883.

BURTON, HENRY G., CAPTAIN AND ASSISTANT-SURGEON.—The leave of absence granted October 2, 1882, is extended two months. Paragraph 2, S. O. 49, A. G. O., February 28, 1883.

CLEARY, PETER J. A., CAPTAIN AND ASSISTANT-SURGEON.—Granted leave of absence for four months on account of sickness, to take effect January 3, 1883, in extension of his authorized absence on certificates of disability. Paragraph 6, S. O. No. 40, A. G. O., February 16, 1883.

HEIZMANN, CHARLES L., CAPTAIN AND ASSISTANT-SURGEON.—To be relieved from duty in the Department of the Columbia. S. O. 12, Department of the Columbia, February 8, 1883.